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SYNONYMIC NOTES AND NEW SPECIES OF LEPIDOPTERA

By WM. BARNES AND F. H. BENJAMIN

Recently the senior author went to Washington and compared certain specimens with types in the U. S. National Museum.

The result of this trip, published herein, was to prove certain suspected synonymy and check a number of new forms against possibility of having been described from the Neotropics.

Cisthene (Cisthene) barnesii form **costimacula** Draudt.

Illice striata ab. 2, Hampson, Cat. Lep. Phal. B. M., ii, 369, 1900.
Illice striata costimacula Draudt. in Seitz. Macrolop. vi, 259, 1918.

Name given by Draudt to ab. 2 of *striata* as listed by Hampson, being a specimen in Coll. Schaus, from Glenwood Springs, Colo., ex Coll. Barnes.

Dr. Barnes collected *striata* at Glenwood, Fla., and the species named *barnesii* by Dyar at Glenwood Springs, Colo.

The National Museum Collection was searched by H. G. Dyar and Wm. Barnes for the type of *costimacula*. No Schaus collection specimen was found, although a number of Barnes Collection specimens were found from Glenwood Springs, Colo., types of *barnesii*. These had been previously examined by the junior author, and notes read "types show great variation in band on fore wing. One with yellow hindwing."

Dyar's original description of *barnesii* calls attention to the variation.

Barnes and McDunnough (Contrib. N. H. Lep. N. A., IV, (2), 83, 1918) call attention to the fact that the normal form of

barnesii at Glenwood Springs, Colo., has a pink hindwing and rename the yellow hind winged form *flavula,* figuring as typical *barnesii* (pl. XIV, f. 10), a specimen agreeing with the single "cotype" in the Barnes Collection.

Until a definite restriction is made from the types of *barnesii,* we suggest that *costimacula* be considered a minor form with the median band obsolescent, only marked on the upper side by a small spot on the costa and another on the inner margin. Neither the description nor the locality fit any form of *striata* known to us.

Hypoprepia fucosa subornata N. & D.

Hypoprepia miniata var. *subornata* Neumoegen & Dyar, Can. Ent. XXV, 124, 1893.

Hypoprepia miniata var. *subornata* Ottolengui, Ent. News, VI, 220, 1895.

Ottolengui, 1895, states that the types of *subornata,* so listed in Neumoegen's Check List, are labeled *inornata* and concludes that the labels are "evidently an error."

The original description does not identically fit any specimen we have ever seen, viz., *miniata* without black dusting on the abdomen and with light rose colored hindwings.

The types labeled *inornata* come closest but are obviously the Texas form commonly going in all collections as *subornata,* a form with enough of yellow to the forewings to be placed as a variety of *fucosa.*

Neither the U. S. National Museum nor the Brooklyn Museum Collections contain a *miniata* form agreeing with the description of *subornata.* Both the junior author and Mr. Jacob Doll examined the Brooklyn Collections at different times, while the National Museum Collections were searched some years ago by the junior author, and recently by the senior author.

There seem two courses open. To consider that the names *inornata* and *subornata* represent two organisms, that the types of the latter have been lost, and that the types of the former were not described by Neumoegen and Dyar. The other course, substantiated by the two collections under consideration, by

general determination of specimens, by the Neumoegen Check List, and by Ottolengui as the first revisional author, is to consider that the name *inornata* is an error for *subornata.* We propose to follow this latter course, as it seems to us that not only is it well to follow the first revisional author, but that it is unlikely the types listed by Neumoegen in his Check List would be lost while a second set of types of another very similar name agreeing fairly well (although not identically) with the published description have remained undescribed.

Hypoprepia miniata mississippiensis, new race.

Primaries bright red, striated with black, and faintly marked with orange as in typical *miniata.* Hindwing bright pinkish-red with a few obsolescent black scales at apex and on the fringe. Abdomen black tinged with reddish cephalically and caudally. Beneath: much as in typical *miniata* but lacking the broad black band on the hind wing.

Type locality: Greenville, Miss.

Number and sexes of types: Holotype ♀, 1 ♀ paratype (Geo. Dorner).

Notes: We suspect this will prove to be one of those peculiar races restricted to that section of the Gulf Strip division of the Lower Austral Faunal Zone, surrounding the Mississippi River, probably paralleling in distribution *Pholus satellitia intermedia* Clark.

Agrotis[1] **aurulenta** Sm. (partim.).

Agrotis aurulenta Smith, Bull. U. S. N. M., XXXVIII, 215, 1890. (partim.)

Agrotis aurulenta Smith, Bull. U. S. N. M., XLIV, 66, 1893. (partim.)

Agrotis aurulenta Hampson, Cat. Lep. Phal. B. M., IV, 373, 1903, (partim, nec pl. lxix, f. 26 = ab. 1.)

Agrotis[1] aurulenta aurulentoides Strd.

Agrotis aurulenta ab. 1, Hampson, l.c., 1903.

Agrotis aurulenta ab., *aurulentoides* Strand, Archiv fur Naturgesch, A, (12), 145, 1915.

[1] We tentatively use *Agrotis* in the sense of Hampson.

Agrotis aurulenta Smith (partim), l.c., 1890.
Agrotis aurulenta Smith (partim), l.c., 1893.
Agrotis aurulenta Hampson, l.c., pl. LXIX, f. 26, 1903.

Agrotis aurulenta in Colorado appears to produce smooth and uncontrasty forms, with little or no rufous tints. From Manitoba to northern Illinois a form occurs with the maculation more contrasty, the blackish powderings increased, and with more or less of a slight rufous tint on the primaries. In other words, two minor races seem in evidence.

Smith described *aurulenta* from 3♂ 1♀. Of these, two specimens came from Colorado, one from an unknown locality stated as probably Arizona, and the fourth from Omaha, Nebr. All of these types are in the National Museum labeled type. The Nebraska specimen appears to fit into the Manitoba to Illinois race, the other three to the Colorado race.

Hampson figures a Nebraska specimen as *aurulenta* but his description of typical *aurulenta* is very brief, then follows "ab. 1" without a name, its description appearing probably drawn from the same specimen figured as *aurulenta.*

To "ab. 1" of Hampson, Strand has applied the name *aurulentoides,* which name may apply to the northern-eastern minor race if a division of the species is desired.

Stibadium unicum, new species.

Head and prothorax luteous-white tinged with gray; patagia, mesothorax, and metathorax powdered blackish-gray and luteous white, appearing gray; abdomen luteous. Forewing; shape similar to *curiosum,* ground color brownish luteous, powdered with grayish-black, occupying the costal, medial and terminal areas; a bright metallic-green patch below radius, extending from base to t. a. line, and caudally to inner margin; t. a. line blackish, single, mainly defined by the metallic basal patch, outwardly oblique from costa to submedian fold, bent at a right angle and inwardly oblique to vein 1, thence slightly excurved to inner margin; claviform obsolete; orbicular small, round, poorly defined by black; reniform large, ovate, poorly defined by black, with a central crescent obsolescently defined

by black; t. p. line black, single, outwardly oblique from costa to vein 6, sharply bent, thence parallel with outer margin to vein 4, bent, inwardly oblique to vein 2, again bent, still inwardly oblique, its course nearly parallel with outer margin; subterminal space, except for a gray subapical powdering, filled with the same metallic coloration as the basal area; s. t. line obsolescent; a thin dark terminal line; veins somewhat darkened; fringe luteous. Hind wing whitish, overlaid with fuscous, and appearing silken brownish-gray; fringe luteous-white. Beneath: forewing much as the upper side of hindwing, slightly darker; hindwing white dusted with a few fuscous scales.

Expanse: 30 mm.

Type locality: Paradise, Cochise County, Ariz.

Number and sexes of types: Holotype ♀.

Bomolocha atomaria Smith.

Bomolocha atomaria Smith, Trans. Am. Ent. Soc., XXIX, 216, 1903.

Bomolocha atomaria Woodruff, Bull. B'klyn. Ent. Soc., VIII, 46, 1913.

Bomolocha chicagonis Dyar, Proc. Ent. Soc. Wash., VI, 105, 1904.

Bomolocha chicagonis var. *perpallida* Dyar, Proc. Ent. Soc. Wash., VI, 105, 1904.

Twenty specimens before us from Milwaukee, Wis., and Volga, S. Dak., show what at first appears to be considerable variation in color, but apparently the more rubbed the specimens are the lighter they appear. We possess a specimen recently compared with type *perpallida* by the senior author, this agreeing perfectly with two cotypes of *atomaria* Sm. before us. A prior comparison with the type of *chicagonis* represents a somewhat darker, but a much fresher specimen. We have arrived at the conclusion that all three names represent the same thing. The actual variation does not appear greater than found within a single sex of other species of the same genus, such as *manalis, baltimoralis, vega,* etc., and is certainly covered by our Milwaukee series.

Pseudhapigia brunnea Schs.

Pseudhapigia brunnea Schaus, Trans. Ent. Soc. Lond., 343, 1901.
Pseudhapigia brunnea Dyar, Proc. Ent. Soc. Wash., VI, 65, 1904.
Hypygia estrella Barnes, Can. Ent., XXXVI, 267, 1904.
Hapygia estrella Barnes & McDunnough, Contrib. N. H. Lep. N. A., I, (4), pl. XI, f. 7, (type ♀), 1912.

A specimen agreeing with the types of *estrella* was compared by Dr. Barnes with the type of *brunnea,* with which it agreed.

We are indebted to Messrs. Englehardt and Doll for first calling our attention to the probable synonymy.

We might here mention that the next genus to *Pseudhapigia* on the B. & McD. Check List, is erroneously spelt *Gargida.* The original orthography is *Cargida.*

Phobetron dyari, new species.

Size, markings, and general habitus of a small female *pithecium.* Upperside: forewing, head, and prothorax with a yellowish ground color, the forewing tinged rufous and purplish-pink basally, distally of the median shade, and along inner margin; hindwing bright salmon-pink. Meso-, metathorax and abdomen luteous tinged with same color pink as on hindwing. Beneath: forewing luteous, suffused with salmon-pink; hindwing bright salmon-pink; legs, thorax, and abdomen more or less luteous so strongly tinged with salmon-pink as to appear in the main pinkish.

Type locality: Kerrville, Tex.

Number and sexes of types: Holotype ♀, June, 1918, presumably from the Lacy Collection.

Notes: We are indebted to Dr. H. G. Dyar for searching the U. S. National Museum Mexican Collection to be sure the species had not been described from Mexico.

Prolimacodes trigona Hy. Edw.

Limacodes trigona Hy. Edwards, Pap., II, 12, 1882.
Eulimacodes telligii Barnes, Can. Ent. XXIII, 46, 1900 (form norm.).
Prolimacodes filifera Dyar, Ins. Ins. Mens., XIII, 17, 1925.

The types of *telligii* and *filifera* agree according to compari-

son by the senior author. If *filifera* is to be sorted from *trigona,* then the name *telligii* Barnes will have priority for it.

Lithacodes fasciola belfragei Dyar.

Lithacodes belfragei Dyar, Ins. Ins. Mens., XIII, 16, 1925.

We are indebted to Dr. Dyar for the loan of a specimen agreeing with his types. Ten other similar specimens are before us from San Antonio, Shovel Mt., and Kerrville, Texas. Another Shovel Mt. specimen appears to be an intergrade, and still another to be indistinguishable from normal eastern *fasciola,* which sometimes occurs with pale hindwings. In view of the intergrades we doubt *belfragei* is specifically distinct, and suggest temporarily placing the name as a subspecies.

Sylepta pimalis, new species.

Very similar to *brumalis* B. & McD. which Dr. Dyar has stated, probably correctly, to be a synonym of *cephalis* Wlk., but the colors somewhat more intensified; forewing with the space in the cell between the stigmata filled with blackish scales, appearing as a strongly disconcolorous black spot on the wing.

We would place little stress upon these characters, were it not for the fact that a long series of *brumalis,* including the types, from Texas are uniform, none showing the filling to the cell stronger than the ground color; while our entire long Arizona series are also uniform in appearance, and all show the filling.

Besides the types, we have another series of the present species from Douglas, Arizona.

Type locality: Baboquivari Mts., Pima Co., Ariz.

Number and sexes of types: Holotype ♂, 15-30 July; Allotype ♀, 15-30 July; 45♂ 17♀ paratypes, 15-30 June to 15-30 Sept., O. C. Poling Coll.

Anemosella Dyar

Type *Anemosella basalis* Dyar

Anemosella Dyar, Proc. U. S. N. M., XLVII, 399, 1915, *basalis* sole species and designated type.

Anemosella Barnes & Benjamin, Proc. Ent. Soc. Wash., XXVII, 128, 1925.

Anemosella polingalis, new species.

♂: forewing: rufous-brown; crossed by two nearly parallel, slightly excurved, but inwardly oblique white lines; basal space darkest, mesial half of median area paler than distal half, discal spot brownish-gray. Hindwing: luteous-white, suffused with rufous and appearing of that color; an obsolescent luteous-white median shade, veins somewhat darkened by rufous. Beneath: rufous; hindwing luteous-white tinged with rufous through and below cell; both pairs of wings crossed by a luteous common line.

♀: similar to ♂, the coloration only slightly less rufous.

Expanse: ♂, 20 mm.; ♀, 24 mm.

Type locality: Baboquivari Mts., Pima Co., Ariz.

Number and sexes of types: Holotype ♂, 15-30 Aug. 1924; Allotype ♀, 15-30 Oct. 1924; O. C. Poling Coll.

Notes: We had already published regarding the male of this, 1925, Proc. Ent. Soc. Wash., XXVII, 128, but awaited a female before using the genus *Anemosella* or adding *basalis* to our lists. Dr. Dyar has seen these two specimens, which were compared with his type by Dr. Barnes, and both Barnes and Dyar thought them congeneric. Vein 6 of the forewing of *polingalis* is not stalked with 7-10 in our two specimens. However, in *nevalis* and *viridalis* the position of vein 6 is variable, sometimes entirely free from the distal margin of the cell, at other times stalked. Our only four specimens of *obliquata* (types and cotypes of *albistrigalis*) have vein 6 free.

We suggest placement of *viridalis, obliquata* (*albistrigalis*), and *nevalis* within *Anemosella*, along with *polingalis* and *basalis* (Mexican).

The two latter are very closely allied, and may ultimately prove to be subspecies of one another. However, within the known species of the genus there is very little variation, and as our types do not agree with Dyar's, we see little to be gained by describing the present form as a subspecies.

Crambus angulatus B. & McD.

Crambus angulatus Barnes & McDunnough, Contrib. N. H. Lep. N. A., IV, (2), 171, 206, pl. XXIV, f. 15, (type ♂), 1918.
Crambus diegonellus Dyar, Ins. Ins. Mens., X, 28, 1923.

A specimen agreeing with the types of *angulatus* was compared with the type of *diegonellus* by the senior author and found to agree.

Tallula baboquivarialis, new species.

Intermediate between *fieldi* and *atrifascialis.* Size of the latter, with a similarly colored collar: other markings more as in *fieldi,* but the rufous tints brighter; the medial dark area more restricted, occupying only about one-third of the medial space; the raised scales mostly white, the dark colored ones restricted to the anal region; the scaling to the palpi and tongue much paler, white and pale rufous replacing most of the blackish.

Type localities and number and sexes of types: Holotype ♂, Brown's Canon, Baboquivari Mts., Pima Co., Ariz., elevation approximately 5,000 ft., 15-30 May, 1923; Allotype ♀ same data; 1♂ 2♀ Paratypes, Baboquivari Mts., Pima Co., Ariz., 1-15 June, 15-30 Aug., 15-30 Oct., 1924; all O. C. Poling Coll.

Givira kunzei Dyar.

Givira kunzei Dyar, Ins. Ins. Mens., XI, 29, 1923.

Dr. Dyar points out in his original description that this may only be a small form of *theodori.* We possess three specimens from Mr. Kunze, one of which has been compared with type by Dr. Barnes, another specimen labeled Phoenix, Ariz., is before us, and sixteen other specimens apparently intergrading to typical *theodori.* We fail to distinguish between the two names. Size, and the amount of purple shading terminally on the forewing, the characters used by Dr. Dyar, are decidedly variable, scarcely any two specimens being identical. Specimens agreeing with the types of both names are included under *theodori* by Barnes and McDunnough in their revision. Before stating that *kunzei* is a synonym, however, we would like to see more *theodori* from New Mexico and Texas.

Acossus populi orc Stkr.

Cossus orc Strecker, Proc. Acad. Nat. Sci. Phila., 282, 1893.
Acossus orc Barnes & McDunnough, Contrib. N. H. Lep. N. A., I, (1), 31, pl. V, f. 7; pl. VI, ff, 6-7 (types), 1911.
Acossus generosa Dyar, Ins. Ins. Mens., XIII, 18, 1925.

Barnes and McDunnough, 1911, figure the ♂ ♀ types of *orc*. These, through the courtesy of the Field Museum, we have again had before us for critical examination. Twenty-six specimens from various California, British Columbia, Colorado localities and Glacier National Park, Montana, are before us, the latter compared with the types of *generosa* by Dr. Barnes.

No two specimens are absolutely identical. Strecker's ♀ type is abnormal in having heavier markings to the forewing than usual. His ♂ type fits well into our series. In any single locality the nature and extent of the black markings is very variable. The contrasting oblique blackish shade through the median area of the forewing, discussed by Dr. Dyar, is in reality a character sometimes reduced, but seldom obsolete, within the form *orc* although not present in the unique type of *populi* nor in the allied *undosus*.

AN UNDESCRIBED SPECIES OF DIXA FROM WEST AFRICA

(Diptera, Dixidae)

By CHARLES P. ALEXANDER

An interesting species of *Dixa* has been received from my friend, Rev. Jacob A. Reis, taken in the Cameroun. I am greatly indebted to Mr. Reis for this and other valuable material received in the past. The types of the species are preserved in the writer's collection.

In an earlier paper (Ins. Ins. Mens., 10: 19-20; 1922) I outlined the then known distribution of the family, indicating its apparent absence from the Australian and Ethiopian regions. More recently the exhaustive studies of Dr. André Tonnoir have added rather numerous species to the Australasian fauna

(New Zealand, 6 species; Australia and Tasmania, 6 species) while the present record of the group from the Ethiopian region gives to the family a Cosmopolitan distribution. Until very recently the group was known only by the single genus *Dixa* but new subgeneric and generic divisions have now been made by Dyar and Shannon (Ins. Ins. Mens., 12: 193-201; November, 1924) and Tonnoir (Records Canterbury Mus., 2: 221-233; December, 1924).

Dixa (Paradixa) camerounensis, new species.

Male: Length about 2.8-3 mm.; wing 3.2 mm.

Female: Length about 3.5 mm.; wing 3.2-3.4 mm.

Rostrum and palpi brown to dark brown. Antennae elongate, in the ♂ if bent backward extending to opposite one-third the length of the abdomen; scapal segments obscure fulvous; flagellum dark brown with conspicuous erect setae. Head brown.

Mesonotum fulvous brown medially, darker laterally, the sublateral and humeral regions more yellowish; a narrow transverse dusky line behind the humerus; scutal region darker; scutellum testaceous; postnotum darker brown. Pleura dark brown, paler ventrally, or in some cases, yellowish brown lined longitudinally with narrow dark brown stripes. Halteres pale, the knobs a little darker. Legs with the coxae shiny brownish yellow, darker at base; trochanters brownish yellow; femora obscure yellow, narrowly tipped with black, usually preceded by a broad, clearer yellow ring; tibiae obscure yellow, the base dusky, the tips more or less infuscated; tarsi pale brown, darker apically; segments of legs with conspicuous erect setae. Wings yellowish subhyaline, the costal margin tinged with yellowish brown; a similar suffusion along vein *Cu;* a narrow darker brown crossband entirely traversing the wing at the cord, widest in the fork of *Rs,* narrowed posteriorly; apices of longitudinal veins narrowly and indistinctly seamed with brown; veins yellowish, darker in the infuscated areas. Venation: Sc_1 ending a short distance before the origin of *Rs; Rs* relatively short, straight or even slightly convex; *r-m* a little longer than to

twice the length of the basal deflection of R_{4+5}; petiole of cell R_3 about two-thirds the cell.

Abdominal tergites obscure brownish yellow, the sternites brighter yellow; lateral margins of the segments with narrow dark brown linear marks to produce a narrow lateral stripe; hypopygium brown.

Habitat: Cameroun.

Holotype, ♂, Muami, altitude 1,000 feet, August 2, 1923; from moss on bank of brook, rainy wet weather (J. A. Reis).

Allotopotype, ♀.

Paratopotypes, 6 ♂♀.

ON THE STATUS OF THE GENERIC NAME ANTHRAX SCOPOLI

By J. M. ALDRICH

This genus was established by Scopoli (1763, 358), with only one species, *Musca morio* Linnaeus.

The species *morio* was named by Linnaeus (1758, 590) in his classic tenth edition of Systema Naturae, now accepted as the beginning of modern binomial nomenclature. His description is as follows:

"7. M. antennis filatis subulatis, corpore hirto atro, alis dimidiato-nigris."

This brief description clearly indicates a well-known Bombyliid of the region with wings half black, and there is complete agreement as to its identity. Linnaeus however added several bibliographical references, one of which was "Fn. svec. 1067." This refers to a fly which he described under this number in the first edition of his Fauna Sueciae (1746, 316), but of course without giving it a specific name, as he had not at that date developed the idea of a single word for the name of each species. This 1746 fly was distinctly different from the one described in 1758 as *morio:* the wing was much more than half infuscated, the hyaline portion being along the hind edge, and the abdomen showed silvery dots. This species was described as *Musca anthrax* by Schrank (1781, 439).

It would seem that the reference to the 1746 paper may be disregarded, not only because it contradicted the description he had just given, but also because it ran back into the period prior to 1758, and hence could not affect binomial nomenclature beginning at that date.

Linnaeus in 1761 published a second edition of Fauna Sueciae, in which (p. 440) he attempted to combine the descriptions of 1746 and 1758, the result being evidently incongruous. This however could not affect the validity of the 1758 description, if we admit that modern binomial nomenclature begins at that date. Schiner, who as I understand did not admit this, pointed out the confusion of Linnaeus (1856, 402).

Returning now to Scopoli's work establishing the genus *Anthrax,* it is quite clear that he had Linnaeus's 1746 species before him; not only does the description of the wing agree, but he also mentioned the tuft of minute hairs at the tip of the antennal style, which occurs in *Musca anthrax,* but not in *morio.*

Macquart (1840, 331) established the genus *Spogostylum* on the South American species *mystaceum* new, which is expressly stated to have a tuft of hairs at the tip of the style, and the character is also figured. Schiner (1860, 51) also established the genus *Argyromoeba* on *Anthrax tripunctata* Wiedemann, having the same character; this genus is considered to be a synonym of *Spogostylum,* which includes *Musca anthrax* Schrank, the species which Scopoli took for *morio* Linnaeus.

Both *Anthrax* and *Spogostylum* are large genera, occurring widely over the world. Until 1902 *Anthrax* was based on the real *morio* of Linnaeus, but in that year (1902, 192, also 1908, 34) Professor Bezzi, impressed by Scopoli's acuteness in mentioning the tuft of hairs on the style, decided that the real type of *Anthrax* must be *Musca anthrax* Schrank, regardless of the fact that only *Musca morio* Linnaeus was originally mentioned. He therefore proposed to use *Anthrax* for this genus, making *Spogostylum* and *Argyromoeba* synonyms of it, and selecting another name for the genus including *morio* Linnaeus. This disposition was accepted by Coquillett (1910, 508) and by

Becker (1913, 442); it has never been seriously questioned, although North American nomenclature has been adjusted but slowly to the change, and *Anthrax* is still used in the older sense to some extent. The acceptance of the change may have been in part due to the impression that Scopoli merely restricted *morio* Linnaeus to one of two species originally confused; I think the facts above stated show that there was only one species described in 1758.

The water has apparently passed over the dam; but if the question were coming up *de novo* at the present time, and were to be decided in accordance with the rules of the Commission of Nomenclature, in all probability a special opinion on the case would have to be sought. Dr. Stiles (1914, 152) has discussed in Opinion 65 of the Commission the general question of the cases where a species is misidentified in type citation, and has quoted freely from letters received on the subject. The discussion is very interesting and illustrates the great difficulty of laying down a rule in these cases. The Commission adopted the following principle in 1913:

> "As a specimen is the type of a species, so a species is the type of a genus, and hence when an author names a particular species as type of a new genus it is to be assumed that it has been correctly determined. If a case should present itself in which it appears that an author has based his genus upon certain definite specimens rather than upon a species it should be submitted to the Commission for consideration."

The object of the present note is not to reopen the case of *Anthrax,* but rather to point out the desirability of liberally interpreting technicalities in favor of existing nomenclature before admitting change; had this principle been followed in this instance, we should still be using *Anthrax* in the old sense.

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WHAT IS OESTRUS NASALIS LINNAEUS?

By J. M. ALDRICH

One of the horse botflies was known for more than a century as *Gastrophilus nasalis* Linnaeus. In recent years some writers have changed the name of this species to *Gastrophilus veterinus* Clark, and have indicated that *nasalis* is the valid name for what has been called *Cephenomyia trompe* Modeer.

The case is strikingly like that of *Anthrax,* discussed in the preceding note, except that no question of a genotype is involved.

In Systema naturae, 10th ed., 1758, p. 584, Linnaeus has the following under *Oestrus:*

uasalis. 3. OE. alis immaculatis, thorace ferrugineo, nigro pilis flavis. *Fn. svec.* 1026. *Habitat in* Equorum *fauce, per nares intrans.*

This description fits the adult of what has traditionally been called *nasalis;* but the habit is erroneous, as he says it lives in the throat of horses; although not very far wrong, as the larva lives in the alimentary canal of the horse.

The confusion arises when we follow back the reference to Fauna Sueciae, No. 1026. In this early work no species are named, and it is prior to the beginning of zoological nomenclature in the technical sense, having been published in 1746. But under No. 1026 we find the following:

1026. OESTRUS niger; thorace flavo.
Flor. Iapp. 363, p. 517. Oestrum Rhangiferinum Lapponicum, ventre nigro.
Act. Ups. 1736, p. 31, n. 24. Oestrum idem.
Lappis Trompe.
Habitat in Lapponia.

Descr. Magnitudo & facies praecedentis, a quo differt, quod minus pilosus: *corpus* totum nigrum, sed *thorax* solus villis pallide flavis vestitus. Hunc eundem esse, qui in Lapponia ova sua Rhenonum sinui frontis infigit & quem in itinere, verno tempore, saepe evomunt, me docuit nobiliss: *Carol. Gustav. Friedenreich.*

A free translation of the last sentence would be: "This is supposed to be the same fly which in Lapland inserts its eggs in the frontal sinuses of the reindeer, and which, in the spring of the year, they often cast out in the road, as I am informed by Sir Charles Gustave Friedenreich."

It is an entirely different species from the one named *nasalis* in 1758, and no doubt the one which Modeer named *Oestrus trompe* in 1786; in fact Modeer cites this reference.

Thus far we have simply a valid description, complicated by an erroneous reference to an earlier description; the only unusual feature is that the earlier one is without taxonomic validity, even if a specific name had been used, as it antedates the beginning of recognized nomenclature. So far then *nasalis* is secure, and this is really the whole of the problem. When Linnaeus published the second edition of his Fauna Sueciae in 1761, he attempted to combine the data of the two preceding references, the result being a mere jumble; this was more or less carried on through several publications in the succeeding two or three decades, as sketched by Brauer in Wien. Ent. Zeit., v, 1886, 297. It was this confusion which led some recent writers to think that *nasalis* in the accepted sense is not valid. But we have only to confine our attention to the 1758 reference to see that it is complete and final, and later mistakes cannot affect its validity.

Gastrophilus nasalis Linnaeus is therefore, in my opinion, the correct name for the horse bot, rather than *veterinus* Clark.

A NEW STEPHANID FROM QUEENSLAND

By A. A. GIRAULT

The following species is the second of its genus to be discovered in Australia. The members of the family are found on

the trunks of dying trees and are associated with wood-borers.

Hemistephanus giganteus, new species.

As description *granulatus* but: Temples coriaceus, with an obtuse tubercle behind and above middle of eye (lateral aspect); behind this tubercle glabrous, mesad of it with some fine cross-striation (hind head), dorsal aspect; ventrad of it, temples, cheeks hairy; anterior tubercle distinct but moderate; short cross-carinae caudad of lateral ocelli, on meson; a flavous mark just around ventral end eye; pronotum large, cross-striate, striation extremely fine; mesonotum coarsely cross-striate save mesad anteriorly, a median groove of fine foveae; scutellum glabrous with a few scattered punctures, densely gold-pubescent laterad, roughened at base; metanotum cross-striate at meson, this laterad becoming ruggedness with shallow scars. Mesopleurum coriaceus, with many scattered punctures; metapleurum triangular, convex, densely pilose, sculpture concealed but apparently as with mesopleurum, separated above, below by deep, conspicuous sulci. Basal ½ coxa 3 pitted, vest finely cross-striate, where pitted more or less pilose. Valves ovipositor missing.

Black; tegulae flagella 1-3 legs 1-2 save coxae, petiolate part tibia 3 (basal ¼) and apex of same, tarsi, maxillary palps, reddish yellow. Pronotum, abdomen suffused red. Wings subhyaline, stigma dark. Very large.

Thickened part tibia 3 distal ¾, constricted proximad middle, the part between constriction and basal thin part occupied by a deep circular depression, both sides. Tingalpa, R. Grieve.

THREE NEW THYSANOPTERA FROM AUSTRALIA

By A. A. GIRAULT

The types of the following species in Queensland Museum.

Thrips lacteicorpus, new species.

White, wings hyaline, posterior vein with 16 bristles; apical segment with 10 bristles. Antennae: 7, 1, 2, 3, 5, 4, 6 in

succession shortest, 7 twice longer than wide, narrowest, nipple-like; 1 narrower than 2 and somewhat longer than wide, 6 over twice longer than wide, cylindric oval; 2 somewhat longer than wide, thick; 7 dusky, so apical halves 4-6.

Male similar but antenna 7 wider than long, 1 quadrate, 3 exceeding 5 which widens distad. Head wider than long, shorter than prothorax. More bristly, leg setae more abundant. Shorter.

Male, female prothorax, hind lateral angle pair separated, elongate bristles. Howers *Leptospermum,* Morningside, Q., 4, 11 Oct., 1925.

Thrips mediolineus, new species.

Female creamy; apical segment, dorsal median line rather widely, of abdomen, antennae distal of 3, black. Thorax lemon. Wings dusky save toward base. Antennal 2 dusky.

Veins thickly beset with stout spines, not joined at base. Antennals: 1 quadrate, 2 half longer than wide, 3-4 thrice longer than wide; 5, 6 each a bit shorter and longer than 3; 7 minute, cone-shaped. Scutellum retriculated, with sparse bristles. Tibia 3 distal half beneath with stiff black setae. From blossoms of *Eucalyptus,* and so forth, Morningside, Q., Oct.

Orothrips unguttipennis, new species.

Black, wings smoky save basal 1/3 and large clear spot at costal margin toward apex and extending nearly to second longitudinal vein. Basal 2/3 antennal 3 white. Antennals: 1 quadrate, wide, 2 equals 5, twice longer than wide, 3 equals 4, elongate, four times longer than wide, 6 and 7 equal, half longer than wide; 8-9 equal in length, 9 narrower, both much narrower and smaller than the others. Five cross-veins, all longitudinals bearing small setae. Ocelli in equilateral triangle, lateral against the prominently facetted eye, wide apart.

Scutellum scaly, with minute setae, these few; segment preceding it finely cross-striate. Head behind eyes cross-striate and with numerous, scattered, minute setae. Beenleigh, Q., forest, Dec. 4, 1923.

UNDESCRIBED SPECIES OF CRANE-FLIES FROM THE UNITED STATES AND CANADA

(Diptera, Tipulidae)

By CHARLES P. ALEXANDER

The new species described at this time were contained in collections belonging to the United States Biological Survey, submitted for determination by Mr. McAtee; in the Canadian National Collection, through Mr. Curran; and in the collection of the Museum of Zoology of the University of Michigan, through Professor Rogers. The writer expresses his sincere thanks to the above gentlemen and to the collectors of the material for the privilege of studying these flies.

Ormosia garretti, new species.

Related to *O. paradisea* Alexander; median praescutal stripe bifid; legs black with dark setae; wings with cells *1st* M_2 and *2nd* M_2 subequal in length.

Male: Length, 4.5-5 mm.; wing, 6.5-6.8 mm.

Female: Length, 5.5 mm.; wing, 7-7.3 mm.

Rostrum gray; palpi black. Antennae black throughout, relatively short, the flagellar segments oval. Head gray, the center of the vertex infuscated.

Pronotum gray. Mesonotal praescutum grayish laterally, with four brown stripes, the intermediate pair more distinct, more or less confluent behind; tuberculate pits lying on the mesal edge of intermediate stripes; remainder of mesonotum more or less infuscated. Pleura light gray. Halteres pale. Legs with the coxae and trochanters gray; remainder of legs black. Wings tinged with brown, the oval stigma darker brown; faint brown seams along vein Cu_1, the cord and most of the veins beyond the cord; center of cell *1st* M_2 and part of M_3 subhyaline; veins black, those in the costal region more yellowish. Venation: *r* close to fork of R_{2+3}; cell *1st* M_2 large, approximately as long as cell *2nd* M_2; *m* only about two-fifths the outer deflection of M_3; *m-cu* about one-half its length beyond the fork of *M*; vein *2nd* A sinuous.

Abdomen dark brown, including the hypopygium. Male hypopygium with the basistyles stout, the large dististyle triangular in outline, the extensive outer margin densely set with microscopic black setulae. Gonapophyses with a long curved mesal spine, this directed caudad and slightly laterad, the lateral ends of the gonapophyses extending laterad as a stout curved spine. Tips of aedeagus strongly divergent.

Habitat: Alberta.

Holotype, ♂, Banff, July 18, 1922 (*C. B. D. Garrett*).

Allotopotype, ♀, July 19, 1922.

Paratopotypes, 5 ♂♀, July 13-19, 1922.

This interesting fly is named in honor of the collector, Mr. Garrett, who has added greatly to our knowledge of the Diptera of Western Canada. The type is in the Canadian National Collection.

Ormosia hubbelli, new species.

General coloration brown, the praescutum with two dark brown longitudinal stripes; wings strongly tinged with brown; cell *1st* M_2 closed, very small, the veins beyond it elongate; male hypopygium with two apical dististyles.

Male: Length about 5 mm.; wing, 5 mm.

Rostrum and palpi dark brorwn. Antennae with the scape dark brown, the flagellum a little paler brown; antennae of moderate length, the flagellar segments oval. Head brownish gray, the vertex indistinctly variegated with brown

Pronotum brown. Mesonotal praescutum pale grayish brown, the humeral region brighter, the disk with two conspicuous brown longitudinal stripes separated from one another by a narrower median grayish line, the brown stripes continued across the suture onto the scutal lobes; pseudosutural foveae conspicuous, the mesal ends encroaching on the brown praescutal stripes; scutellum and postnotum ochreous, the former with a capillary brown median line. Pleura dark brown, the anepisternum somewhat paler. Halteres brownish yellow, passing into dark brown, this color including the knobs. Legs with the coxae obscure brownish yellow, the fore coxae clearer;

trochanters obscure yellow; femora brown, the tips darker brown; tibiae pale brown, the tips and the tarsi darker brown; legs long and slender without conspicuous erect trichiae. Wings strongly tinged with brown, the stigma scarcely darker; a vague darker clouding along the cord; veins dark brown. All cells of wing with sparse but conspicuous macrotrichiae. Venation: Sc_1 ending just before *r*, Sc_2 opposite one-third the length of *Rs*; *r* about its length beyond the fork of R_{2+3}; cell *1st* M_2 closed, very small, elongate-rectangular, gently widened distally; *m* about one-half the other deflection of M_3; veins beyond cell *1st* M_2 very long; *m-cu* just before the fork of *M*.

Abdomen dark brown, the genital segment and hypopygium paler. Male hypopygium with the basistyles slender, with two terminal dististyles, the outer slender, blackened apically, the tip feebly expanded and with the outer margin feebly serrulate; inner dististyle a little shorter, blade-like, pale. Gonapophyses and aedeagus forming a rather compact phallosome, the small apophyses obtuse at tips, the aedeagus split into two points.

Habitat: Manitoba, North Dakota.

Holotype, ♂, Devil's Lake, North Dakota, August 8, 1920 (*T. H. Hubbell*).

Paratype, ♂, Aweme, Manitoba, August 15, 1920 (*N. Criddle*).

Type in the Collection of the Museum of Zoology, University of Michigan; paratype in the Canadian National Collection. This peculiar fly is named in honor of the collector of the type. The structure of the male hypopygium is unlike that of typical *Ormosia,* suggesting certain Hexatomine types. The strict generic position of the fly must be held in doubt.

Limnophila mc-dunnoughi, new species.

General coloration gray, the praescutum with four dark brown stripes; pseudosutural foveae large and conspicuous, black; femora pale brown, the tips blackened; wings tinged with yellow, with a sparse brown pattern; *Rs* long, cell *1st* M_2 very small.

Female: Length about 11 mm.; wing, 12 mm.

Rostrum black, pruinose; palpi black. Antennae black, the scapal segments pruinose; four basal flagellar segments enlarged, especially the first, the remainder passing through cylindrical to linear; verticils of moderate length. Head black, heavily pruinose; vertical tubercle small but distinct.

Pronotum black, pruinose. Mesonotal praescutum gray with four conspicuous dark brown stripes, the intermediate pair separated only by a capillary vitta, more or less confluent in front, the posterior ends of the stripes somewhat pointed and ending some distance before the suture; lateral stripes crossing the suture; pseudosutural foveae very large, broadly triangular, black; tuberculate pits not evident; scutal lobes gray, marked with brown; remainder of mesonotum light gray. Pleura light gray, the dorso-pleural membrane restricted, buffy. Halteres pale throughout. Legs with the coxae dark, heavily light gray pruinose, the apices paler; trochanters obscure brownish yellow; femora pale brown, the tips narrowly but conspicuously blackened; tibiae and basitarsi pale brown, the tips narrowly darker brown; remainder of tarsi passing into black. Wings faintly tinged with yellow, the base and cells *C* and *Sc* more yellowish; stigma oval, dark brown; small dark brown spots distributed as follows: in cell *R* at mid-distance between arculus and origin of *Rs;* at origin of *Rs;* along the cord and outer end of cell *1st* M_2; veins at apex of wing narrowly seamed with brown; a paler dash in cell *1st A* adjoining the vein at two-thirds its length; veins dark brown, paler in the costal region. No macrotrichiae on veins *Rs,* R_{2+3}, R_2 or the petiole of cell M_1. Venation: Sc_1 ending just beyond the fork of *Rs,* Sc_2 at its tip and subequal to it; *Rs* elongate, longer than R_2, strongly arcuated at origin; R_{2+3} and basal deflection of R_{4+5} subequal; *r* at tip of R_1 and near midlength of R_2; cell *1st* M_2 very small, rectangularly hexagonal; cell M_1 a little longer than its petiole; *m-cu* near midlength of cell *1st* M_2; anterior arculus weakly present.

Abdomen dark brown, the tergites with transverse and obliquely longitudinal impressed lines; sternites reddish brown,

the caudal and lateral margins darker, the impressed areas lying transversely and longitudinally. Ovipositor with elongate valves.

Habitat: Alberta.

Holotype, ♀, Nordegg, July 14, 1921 (*J. McDunnough*).

This interesting *Limnophila* is named in honor of Dr. McDunnough who collected the type. The type is in the Canadian National Collection.

Limnophila harperi, new species.

Belongs to the *unica* group; related to *L. subunica* Alexander; macrotrichiae of veins very sparse, almost lacking on vein *M*; R_2 shorter than cell *1st* M_2 and nearly straight.

Sex ?: Wing, 7.6 mm.

Rostrum and palpi dark brown. Antennal scape dark brown; flagellum broken. Head dark brown.

Pronotum dark brown, sparsely pruinose. Mesonotum almost black, sparsely pruinose, the median line of the praescutum and less distinct lateral stripes of the ground color; scutellum and postnotum heavily light gray pruinose. Pleura dark, heavily pruinose, the dorso-pleural region more buffy. Halteres dark brown, the base of the stem yellowish. Legs with the coxae obscure yellow, the bases infuscated, more extensively on the fore coxae; trochanters yellow; femora and tibiae brown, the tips narrowly and rather indistinctly darkened; tarsi broken. Wings with a faint brownish tinge, the stigma and clouds at origin of *Rs* and on anterior cord darker brown; veins dark brown. Macrotrichiae of veins relatively sparse, on vein *M* there being two immediately before the fork, nine on the distal half of *Rs*. Venation: Sc_1 opposite fork of *Rs*, Sc_2 at its tip; *Rs* short, not as long as cell *1st* M_2, nearly straight so cell *2nd* R_1 is irregularly trapezoidal in outline; *m-cu* beyond midlength of cell *1st* M_2.

Abdominal tergites dark brown, the sternites obscure yellow, on the subterminal segments passing into brown; apex of abdomen broken.

Habitat: Alberta.

Holotype, Sex ?, Athabasca Delta, June 18, 1920 (*Francis Harper*).

The species is named in honor of the collector. The type has been returned to the U. S. Biological Survey.

NEW HOLARCTIC MUSCOIDEA

(Diptera)

By CHARLES H. T. TOWNSEND

The new species described in this paper were all collected by the author. The anatomical terms used have been abbreviated according to the following list:

abd—abdomen
ant—antennae
2ant—2d antennal joint
3ant—3d antennal joint
antax—antennal axis
aps—apical pair of scutellar bristles
ar—arista
1ar—1st aristal joint
2ar—2d aristal joint
3ar—3d aristal joint
ba—base of antennae
bjts—basal joints
br—bristled or bristles
Ci—5th long vein
ch—cheeks
clp—clypeus
cls—claws
cs—costal spine
cub—bend of 4th long vein
cw—clypeal width
d—discal
dec—decussate
ds—discal scutellar bristles
el—eye length
em—eye middle
ep—epistoma
ew—eye width
fc—face
fccr—facial carina
fco—facio-orbital bristles
fcprf—facial profile
foljts—tarsi except metatarsi
fr—front
frlia—frontalia
frprf—frontal profile
frs—frontal bristles
ftar—front tarsi
gno—geno-orbital bristles
hd—head
hh—head height
hm—hind margin of wing
hst—haustellum
htib—hind tibiae
hw—head width
hyp—hypopygium
intsegs—intermediate segments of abdomen
lb—labella
lbd—length of body
ls—lateral scutellar bristles
lsec—last section of 5th vein
lwg—length of wing
m—marginal
Mi—Apical crossvein
M2—4th long vein
M3—hind crossvein

md—median discal bristles
mm—median marginal bristles
mtar—metatarsi
oa—obtuse angle
ocprf—occipital profile
ocs—ocellar bristles
om—oral margin
oml—oral margin level
orprf—oral profile
pfclia—parafacialia
pfrlia—parafrontalia
pfro—proclinate fronto-orbital bristles
pfrw—width of 1 parafrontal in middle
pi—postintraalar bristles
pl—plumose
plp—palpi
poa—postacrostichal bristles
posc—postscutum
pra—preacrostichal bristles
prb—proboscis
prsc—prescutum
ps—postsutural bristles (dorsocentrals)
pub—pubesient
R1—1st long vein
R3—2d long vein
R5—3d long vein
R6—small crossvein
5r—apical cell
ra—right angle
rfro—reclinate fronto-orbital bristles
sct—scutellum
1seg—1st apparent abdominal segment
2seg—2d do.
3seg—3d do.
4seg—4th do or alan segment
segs—segments
sq—squamae
st—sternopleural bristles
thvtt—thoracic vittae
thx—thorax
vbr—vibrissae
vbrax—vibrissal axis
vl—vibrissal level
vrs—vertical bristles
vtx—vertex
ww—wing width
x—times (multiplication sign)

Tribe MUSCINI

Mallochomyia, new genus.

Genotype, *Mallochomyia johanseni* nom. nov. for *Phormia caerulea* Malloch (1919) preoc. (nec RD, 1830), Bernard Harbor, Northwest Territory.

Differs from *Phormia* RD by vbrax much exceeding antax; ar rather short, pl 2/3 way; thoracic spiracles much enlarged, especially the prothoracic. (Mall., Can. Arct. Exped. III, C 59, pl. 8, f. 19.)

Tribe GYMNOPEZINI

Gymnogaster, new genus.

Genotype, *Gymnophania montana* Coquillett, White Mountains, New Hampshire.

Differs from *Gymnophania* BB by cub being reduced to a faint even curve which is scarcely greater than the reverse curve of R5; differs from *Cinochira* Ztt by 5R being very narrow, almost equally and evenly narrowing at both ends, narrowly open to closed in tip; 3ant ♂ short, rounded, scarcely longer than 2ant.

Tribe LYDELLINI

Pseudoeribea, new genus.

Genotype, *Pseudoeribea paradexoides,* new species.

Hd distinctly wider than high, a little narrowed below eyes; frprf little longer than fcprf, flat, sloping; fsprf receding, faintly bulged; orprf gently and evenly arcuate; ocprf somewhat bulged below; clp well sunken, over 2x as long as wide; no fccr; ep wide, short, well warped; fclia ciliate nearly 1/2 way or about 1/2 way to lowest frs; vbr long, strong, dec, on om; vbrax about 3/4 antax, latter little over 1/2 hh; hst scarcely 1/3 hh; plp long, clublike, a little thickened at tip; 2ant somewhat elongate; 3ant ♂ 3x 2ant, rather wide, sharply angular on upper apical corner; ar bare, thickened 1/3 way, 2ar slightly longer than wide; eyes bare; ♂ vtx over 1/5 hw, fr equilateral on posterior 1/2; fc in middle nearly 1/2 hw; 3 frs below ba; 2 vrs ♂, outer short, inner not dec; no pfro ♂ but 3 rfro, hind one short; ♂ frlia slightly narrowed posteriorly, about equal to pfrw; ocs strong, proclinate; pfrlia finely hairy, somewhat narrowed posteriorly; pfclia bare, nearly equilateral, not 1/2 cw; ch little over 1/4 el; several gno, especially anteriorly; thx nearly as wide as hd; 3 to 4 st, 3 pi, pra, poa, ls; aps dec, moderate size; 1 moderate ds; prsc much shorter than posc; cs short but distinct; R1 bare, terminating well beyond R6; R5 br only at base; 5R open well before tip; cub oa, slightly over 1/3 ww from hm; M1 gently bent in at base; M2 produced in very short stump; M3 sinuate, nearer to cub; C1 bare, 1sec short; sq subquadrate, rounded-angular on inner corner; legs moderately long, htib scarcely subpectinate, mtar not equal to foljts; ♂ cls long; abd ovoconic, as wide as thx,

with erect bristly hairs; 1 mm on 1seg; 1 mm and 2 md on 2seg; m row and 2 md on 3seg; m and d rows on 4seg.

Pseudoeribea paradexoides, new species.

Lbd, 8-1/2 mm.; 1wg, 6-1/2 mm. 1 ♂, Mount Holyoke Gap, Mass., Sept. 23, on foliage.

Hd dull silvery-cinereous, fc lighter silvery in oblique view; frlia dark brown; ant blackish; plp fulvous-yellow; thx and sct black, with very thin coat of silvery; 4 black thvtt, inner sublinelike; bad black, yellowish-red on sides of 2seg and base of 3seg, last 3 segs very thinly silvery; legs black, tibiae with brownish tinge; wings clear; sq whitish.

Tribe MEIGENIINI

Apacheprospherysa, new genus.

Genotype, *Apacheprosphyerysa orbitalis,* new species.

Frprf equal to fcprf, flat, strongly sloping; fcprf very receding; clp sunken, nearly 2x as long as wide; no fccr; ep wide, moderately short, strongly warped; fclia rather wide, oblique, ciliate 1/3 way; vbr dec, near om; vbrax 3/4 antax, latter 3/4 hh; prb short and stout; plp clublike; ant inserted above em; 2ant moderately short; 3ant ♂ 3-1/2x 2ant, rather stout, submucronate; ar pub, thickened 1/2 way, bjts short; eyes thickly pilose, pushed forward below; fr prominent, ♂ vtx 1/3 hw, fc a little wider than fr; 2 frs below ba; 2 vrs ♂, inner not dec; ♂ with 2 pfro and 3 rfro; frlia nearly equilateral, about equal to pfrw; ocs proclinate; pfclia bare, somewhat narrowed below, the lower part 1/2 cw; ch 1/3 el; 2 st, 3 pi and ps, 2 pra, 3 poa and ls; no aps; 2 short ds in transverse row; wings short and broad; cs short; R1 bare; R5 br only at base; 5R narrowly open a little before tip; cub a rounded oa, 1/3 ww from hm; M1 faintly bent in; M3 crooked, near middle; C1 bare, 1sec short; legs short, htib not pectinate, middle mtar nearly equal to foljts; ♂ cls short; abd ovate, thickly short-hairy; 1 mm on 1st 2 segs, 1 md on intsegs, m row on 3seg, only bristly hairs on 4seg.

Apacheprospherysa orbitalis, new species.

Lbd, 5-3/4 to 6 mm.; lwg, 4-3/4 to 5 mm. 2 ♂, South Fork of Eagle Creek, Sierra Blanca, New Mexico, 8,000 ft., August 16, on foliage.

Blackish, thinly silvery; whole hd silvery, ch grooves reddish-brown; frlia and ant brown; plp pale fulvous; thx, sct and abd thinly silvery-white; 4 brown thvtt, inner a little narrower than outer; posterior 1/2 or less of last 3 segs more thinly pollinose and shining; legs blackish, tibiae and sometimes femora more or less tinged with brown; wings clear; sq nearly white.

Tribe EXORISTINI

Palpexorista, new genus.

Genotype, *Palpexorista phoroceroides,* new species.

Hd considerably wider than high, narrowed for only short way below eyes; frprf equal to fcprf, flat, sloping; fcprf straight, receding; orprf short, curved up anteriorly; ocprf scarcely bulged below; clp well sunken, 2x as long as wide, narrowing upward; no fccr; ep cut off short, edge warped; fclia strongly ciliate to lowest frs with heavy downwardly-curved br; vbr strong, dec, on om; vbrax over 1/2 antax, latter 2/3 hh; prb 1/2 hh, 1b enormous, hst no longer than 1b; plp ♀ swollen and bare apically, a little flattened but not spatulate; 2ant somewhat elongate; 3ant ♀ 4x 2ant, wide and rather widened to tip, compressed; ar longer than 3ant, bare, thickened 1/4, bjts short; eyes densely pilose, but little oblique, descending considerably short of vl; ♀ vtx less than 1/3 hw, fr widening gently; fc widened at same angle, over 1/2 hw in middle; 2 frs below ba; 2 vrs ♀, inner not dec; ♀ with 2 strong pfro and rfro; frlia pilose, slightly narrowed posteriorly, equal to pfrw; ocs strong, proclinate; pfrlia narrowed posteriorly, coarsely setose; pfclia bare, narrowed below to little over width of fclia; ch 1/4 el; thx as wide as hd; 3 st, pi, pra, poa, and ls, 4 ps; aps quite strong, dec; 1 moderately strong ds, separated; prsc distinctly shorter than posc; no cs; R1 bare, terminating far beyond R6; R5 br only at base, with 4 br; 5R open well

before tip; cub a somewhat rounded ra, 1/3 ww from hm; M1 well bent in at base; M2 prolonged in slight wrinkle; M3 sinuate, nearer to cub; C1 bare, 1sec short; sq large, angular on inner corner; legs not very long, htib coarsely pectinate; mtar equal foljts, middle pair exceeding same; ♀ ftar normal; abd pointed-ovate; 1 mm. on 1st 2 segs, m row on 3seg; 4seg densely covered with erect spines except on anterior edge.

Palpexorista phoroceroides, new species.

Lbd, 12 mm.; lwg, 10 mm. 1 ♀, Mount Holyoke Gap, Mass., Sept. 23, on foliage.

Hd silvery-whitish, pfrlia pale golden; frlia brownish-black; ant blackish; plp fulvous-yellow, dusky basally; thx silvery, 4 subequal blackish thvtt; sct testaceous beneath pollen; abd dark brownish to black, faintly fulvous on sides of intsegs, last 3 segs rather uniformly silvery pollinose; legs black, front femora pollinose but others less so; wings clear; sq whitish to subwatery.

Tribe PHRYNOINI

Catagoniopsis, new genus.

Genotype, *Catagoniopsis infernalis,* new species.

Hd scarcely wider than high, narrowed below; frprf scarcely equal to fcprf, flat, sloping, prominent; fcprf nearly straight, receding; orprf arcuate, evenly curved up in front and behind; ocprf a little bulged below; clp moderately sunken, rather wide, about 2x as long as wide, gently narrowed upward; a faint median ridge representing fccr; ep rather short, wide, warped; fclia strongly ciliate with 7 or 8 heavy br; vbr nearly on om; vbrax 2/3 antax, latter 2/3 hh; pbr short and stout; plp clublike but not much swollen at tip ♀; ant inserted near upper level of eyes, not reaching vl; 2ant slightly elongate; 3ant ♀ 4x 2ant, narrow and long, tip angular above in profile and rounded below; ar long, bare, thickened 2/5 way, bjts short; eyes thickly pilose, reaching far short of vl; ♀ vtx rather over 1/3 hw, fr widening rapidly; fc widened at same angle as fr, 2/3 hw in middle; 3 to 5 frs below ba, but only upper 3 strong; 2 vrs ♀, inner not dec; 2 pfro and rfro ♀;

frlia equilateral, less than pfrw, length on median line about 3x width; ocs strong, proclinate; pfrlia wide anteriorly, narrow posteriorly, set with hairs that are shorter on outside; pfclia rather over 1/2 cw in middle, but little narrowed below ♀, with bristly hairs outside and below lowest frs; ch nearly 1/2 el; 2 small gno next peristomal row; thx anteriorly nearly as wide as hd; 3 st, pi, pra, poa, and ls; 4 ps; aps quite strong, dec; 1 moderately strong ds; prsc much shorter than posc; cs very small; R1 bare, terminating well beyond R6; R5 br only at base; 5R widely open well before tip; cub subrounded oa, over 1/4 ww from hm; M1 double-waved; M3 gently sinuate, nearer cub; C1 bare, 1sec short; sq moderately large, subangular on inner corner; legs short, htib irregularly br; middle mtar nearly equal to foljts; ♀ ftar not widened; abd broad, short-ovate; 1 mm. on 1seg; 2 mm. and 1 md on 2seg; m row and 1 md on 3seg; 4seg covered except anterior margin; ♀ theca pointed-scooplike.

Catagoniopsis infernalis, new species.

Lbd, 8-1/2 mm; lwg, 7-1/2 mm. 1 ♀, Hell Canyon, Manzano Mts., New Mexico, Sept. 18, on foliage of *Quercus.*

Hd silvery-whitish pollinose, pfrlia with scarcely a brassy tinge; frlia brown; ant brownish-black, 2ant and base of 3ant tinged with fulvous; plp fulvous-yellow; thx silvery-whitish pollinose, 4 subequal blackish thvtt; sct fulvous beneath pollen; abd blackish, faintly reddish on sides of 2seg at base, the whole submarmorate with silvery-whitish; legs blackish, tibiae faintly tinged with reddish; wings clear, faintly yellowish at base; sq white.

Tribe ACTIINI

Erynniopsis, new genus.

Genotype, *Erynniopsis rondanii,* new name for *Erynnia nitida* Róndani (nec RD), Europe.

Differs from *Anachaetopsis* BB by clp wide-ovate; ep short, slightly warped; ant inserted about on em; 3ant ♀ 4x 2ant wide; 2ar slightly elongate; eyes bare; ch 1/2 el; strong cs; R1 bare; R5 br only at base; 5R very short-petiolate, the petiole

not longer than R6; M3 moderately steep. (BB, Musc. Schiz. I, f. 103.)

Strobliomyia, new genus.

Genotype, *Thryptocera fissicornis* Strobl, Europe.

Characterized by 1ar and 2ar elongate and about equal, 3ar about 2x 2ar; pfclia moderately wide, setulose on upper 1/2; discal cell short; M3 before wing middle; 1sec C1 2x M3.

Schizactia, new genus.

Genotype, *Schizotachina vitinervis* Thompson, Massachusetts.

Differs from *Schizotachina* Wlk by 5R incomplete, M1 absent, M3 opposite tip of R1, 1sec C1 3x M3.

Visayalydina, new genus.

Genotype, *Visayalydina sierricola,* new species.

Hd a little wider than high, narrowing below eyes, frprf about equal to fcprf, flat, strongly sloping; fcprf strongly receding; orprf shorter than frprf, gently arcuate; ocprf a little longer than fcprf, bulged below and back of eyes; clp gently sunken, rather wide, about 2x as long as wide; no fccr; ep cut off short, wide, edge warped; fclia subcordlike, not very wide, practically bare; vbr dec, on om; vbrax scarcely 3/4 antax, latter fully 3/4 hh; prb about hh, 1b moderately large; plp clublike, consistently swollen at tip ♀; ant inserted above em, reaching well short of oml; 2ant short; 3ant ♀ 3x 2ant; ar bare, thickened to sharp tip, 2ar long; eyes thinly pilose, small , oblique, about 2x ts long as wide, descending well short of tips of ant; ♀ vtx 5/13 hw, fr widened anteriorly to over 1/2 hw; fc widened from fr at same angle, 2/3 hw below; 2 rows frs ♀, outer row weaker and only present anteriorly, 4 frs below ba, th lowest belonging to the outer weak row and downwardly inclined, the other 3 upwardly inclined; 2 vrs ♀, inner not dec, outer exactly divergent; ♀ with 2 pfro and 4 rfro, the hindmost pair of the latter divarivate; frlia short, wide, equilateral, less than pfrw; ocs strong, long, divaricate-proclinate; pfrlia broad, narrowed posteriorly, with very few setae; pfclia broad, bare, scarcely widening upward, 2x as wide as fclia; ch

over 1/2 el; thx as wide as hd; 3 st, pi, ps, pra, poa and ls; aps minute, dec; 1 moderate-size ds; prsc much shorter than posc; cs strong, long, double; R1 bare, terminating but little beyond R6; R5 br 1/3 way to R6 with 4 br; 5R tightly closed a little before tip, almost neck-petiolate; cub a rounded oa, 1/4 ww or so from hm; M1 gently bowed in; M2 showing a microscopic-stump prolongation; M3 almost in middle, nearly straight, not perpendicular to M2; C1 bare, 1sec rather over 1/3 preceding section; sq not large, round-subangular on inner corner; legs short, tarsi short, htib sparsely subpectinate; middle mtar about equal to foljts; ftar ♀ widened; abd ovate; no mm on 1seg; 1 mm on 2seg, not as long as others; 1 mm and 1 md on 3seg; m and d rows on 4seg; ♀ hyp normal.

Visayalydina sierricola, new genus.

Lbd, 6 mm.; lwg, 5 mm. 1 ♀, Las Visayas, at edge of mountain meadow near San José de Babícora, Sierra Madre of western Chihuahua, August 27, on foliage.

Hd dull silvery, the facial plate and frlia blackish; ant blackish, the junction of 2ant and 3ant narrowly fulvous; plp obscure rufous; thx and sct dull greenish, with thin coat of silvery pollen; 4 indistinct dark thvtt, inner linelike; abd metallic dull greenish, last 3 segs thinly on extreme base; legs blackish; wings nearly clear, with faint whitish tinge, the base and veins yellowish; sq nearly white, the extreme edge yellowish.

Tribe CARCELIINI

Prooppia, new genus.

Genotype, *Carcelia fuscipennis* Robineau-Desvoidy, Europe.

Differs from *Huebneria* RD by htib not ciliate; no strong md on intsegs ♂, though the md always distinguishable, being 2 on 2seg and 3 on 3seg, all short and weak; wings black at base and somewhat smoky on disk.

Tribe PHRYXINI

Plagiophryxe, new genus.

Genotype, *Plagiophryxe pecosensis,* new species.

Hd about 1/3 wider than high, somewhat narrowing below

eyes; frprf about equal to fcprf, a little arcuate; fcprf nearly straight, receding; orprf beveled anteriorly; ocprf but little bulged below; clp considerably sunken, wide, 1-1/2x as long as wide; no fccr; ep wide, cut off short, edge scarcely warped; fclia ciliate nearly or quite 1/2 way but upper br weak; vbr strong, dec, on om; vbrax 3/4 antax, latter 3/5 hh; prb less than hh, hst very short, lb large; plp stout, as long as 3ant, a little thickened at tip ♀; 2ant short; 3ant ♀ 3x 2ant; ar thickened little over 1/2 way, bare, 2ar long; eyes thickly pilose, nearly reaching vl; ♀ vtx nearly 2/5 hw, fr widening gently therefrom; fc in middle 3/5 hw; 4 frs below ba, descending nearly 1/2 way down pfclia; 2 strong vrs ♀, inner not dec, outer strongly curved; 2 strong pfro and rfro ♀, the hind one of latter strongly curved; frlia equilateral, exceeding pfrw, length on median line 2x width; ocs strong, proclinate; pfrlia but little narrowed posteriorly, sparsely setose; pfclia bare, distinctly narrowed below, as wide below as fclia; ch nearly 1/3 el; some weak gno; thx nearly as wide as hd; 3 st, pi, pra, poa and ls; 4 ps; aps erect, dec, quite strong; 1 moderately strong ds; prsc much shorter than posc; cs not developed; R1 bare; R5 br only at base; 5R open moderately before tip; cub a rounded oa, near middle of ww; M1 practically straight; M3 sinuate, nearer to cub; C1 bare, 1sec nearly 1/2 preceding; sq rounded behind, angular on inner corner; legs short, htib pectinate with long and short br; middle mtar nearly equal to foljts; ftar ♀ normal; abd pointed-ovate ♀, as wide as thx; 1 mm on 1st 2 segs, 1 md on intsegs, m row on 3seg, m and d rows on 4seg; many erect shorter br on abd simulating md; ♀ hyp with long-spatulate lobes.

Plagiophryxe pecosensis, new species.

Lbd, 6-1/2 mm.; lwg, 5 mm. Various ♀, Harvey's Ranch, Pecos National Forest, New Mexico, 10,000 ft., August 24, on foliage and rocks.

Hd silvery polinose including frlia, with a tawny tinge to the pollen; pfrlia showing dark and frlia light brown beneath the pollen; ant and plp black; thx black, very thinly silvery

pollinose; 4 black thvtt, inner narrow; sct testaceous on apical 1/2; abd black, subshining, last 3 segs thinly silvery; legs blackish; wings clear, straw-yellowish costally; sq whitish.

Tribe STURMIINI

Nemosturmia, new genus.

Genotype, *Nemosturmia pilosa,* new species.

Hd about 1/3 wider than high, elliptic in front view; frprf equal to fcprf, flat, sloping; fcprf receding, faintly concave; orprf gently arcuate; ocprf faintly bulged; clp shallow, nearly 3x as long as wide; no fccr; ep wide, cut off short, not warped; fclia rather wide below, a little oblique, ciliate 1/4 way; vbr on om, short tips barely meeting; vbrax rather over 3/4 antax latter over 1/2 hh; prb short and stout, hst swollen and not longer than lb; plp stout, clublike, bowed, somewhat thickened at tip ♀; 2ant very long; 3ant ♀ 1-1/2x 2ant, very wide, compressed laterally and rounded apically; ar bare, not long, thickened fully 1/2 way, bjts short; eyes thickly pilose, long, descending to vl; ♀ vtx fully 1/3 hw, fr widening considerably; fc nearly equilateral, about 1/2 hw; 2 frs below ba; 2 vrs ♀, inner not dec; 2 strong equal pfro and rfro ♀; frlia broad, equilateral, well over pfrw, length on median line hardly over 2x width; ocs strong, proclinate; pfrlia somewhat narrowed posteriorly, finely setose; pfclia narrowed below, scarcely as wide below as fclia, more than upper 1/2 with fine hairs in 3 irregular rows but leaving a bare space next eye; ch 1/5 el; thx about as wide as hd; prsc much shorter than posc; 2 or 3 st; 3 pi; 4 ps; 3 pra, poa and ls; aps long, dec; 1 ds, widely separated; no cs; R1 bare, terminating well beyond R6; R5 br only at base; 5R widely open well before tip; cub a rounded ra, not 1/3 ww from hm; M1 bent in somewhat at base; M3 nearer to cub, regularly sinuate; C1 bare, 1sec short; sq of moderate size, rounded out behind, angular on inner corner; legs not long, htib pectinate; middle mtar equal to foljts; ♀ ftar normal; ♀ abd long-ovate, pointed at tip, as wide as thx, with many erect bristly hairs; 1 erect separated mm pair on 1st 2 segs, m row on 3seg, 4seg

sparsely covered with weak br; ♀ theca chitinous, sheathlike, enclosing telescoped ovipositor.

Nemosturmia pilosa, new species.

Lbd, 8-1/2 mm.; lwg, 6-1/2 mm. 1 ♀, Franconia, New Hampshire, July 18, on stones in open wash in woods.

Hd yellowish-silvery; frlia dark brown; ant and ar wholly fulvous, 3ant with a deeper rufous tinge; plp fulvous-yellow; thx black, thinly silvery; 4 black thvtt, inner linelike; sct testaceous; abd black, with scarcely a reddish tinge on sides, last 3 segs thinly silvery, the pollen showing best on sides and 4seg; legs blackish; wings clear; sq nearly white.

Sisyrosturmia, new genus.

Genotype, *Sisyrosturmia chaetosa,* new species.

Hd wider than high, narrowing somewhat below eyes; frprf equal to fcprf, faintly arcuate; fcprf straight, faintly receding; orprf curved up anteriorly and posteriorly; ocprf swollen below; clp shallow, wide, hardly 2x as long as wide; no fccr; ep wide, cut off short, edge scarcely warped; fclia oblique, ciliate 1/4 way; vbr dec, on om; vbrax 4/5 antax, latter 1/2 hh; prb little over 1/2 hh; plp stout, clublike, little thickened at tip ♀; ant inserted near upper level of eyes; 2ant not long; 3ant ♀ nearly 4x 2ant; ar long, bare, thickened nearly 1/2 way, bjts short; eyes bare; ♀ vtx 1/3 hw, fr widening; fc in middle nearly 3/5 hw; 3 frs below ba; 2 vrs ♀, inner not dec; 2 strong pfro and rfro ♀; frlia equilateral, nearly equal to pfrw; ocs strong, proclinate; pfrlia narrowed posteriorly, scantily setose; pfclia bare, a little narrowed below, as wide as fclia below; ch nearly 1/3 el; thx as wide as hd; prsc nearly as long as posc; 3 st and pi; 4 ps; 3 pra, poa and ls; aps strong, dec; 1 quite strong ds; cs small but distinct; R1 bare, terminating but slightly beyond R6; R5 br only at base; 5R narrowly open a little before tip; cub a round oa, not 1/3 ww from hm; M1 bent in slightly at base; M3 regularly sinuate, nearer to cub; C1 bare, 1sec short; sq not large, rounded out posteriorly, subangular on inner corner; legs not long, moderately slender, tarsi slender; htib scarcely pectinate; middle mtar equal to

foljts, hind mtar nearly as long; ♀ ftar normal; ♀ abd ovate, pointed posteriorly, as wide as thx; 1 mm on 1st 2 segs. 2 md on intsegs, m row on 3seg, m and 2 d rows on 4seg.

Sisyrosturmia chaetosa, new species.

Lbd, 8 mm.; lwg, 6-1/2 mm. 1 ♀, Base Mt. Washington, New Hampshire, August 25, on flowers of *Anaphalis.*

Hd dull silvery, pfrlia and occipital area of ch blackish; frlia brown; 1st 2 ant joints fulvous, 3ant and ar blackish; plp yellow; thx, sct and abd rather thickly silvery over brown or blackish, only tip of sct pale fulvous; 4 black thvtt, inner linelike; femora blackish-brown to reddish, tibiae wholly reddish-fulvous, tarsi blackish; wings nearly clear; sq tawny.

Tribe SALMACIINI

Eophrissopolia, new genus.

Genotype, *Eophrissopolia acroglossoides,* new species.

Hd less than 1/2 again as wide as high, somewhat narrowed below eyes; frprf little longer than fcprf, flat, gently sloping; fcprf straight, slightly receding; orprf curved up anteriorly; ocprf well bulged below; clp moderately sunken, narrow, nearly equilateral, less than 3x as long as wide; no fccr; ep nearly 1/2 as long as wide, warped at 45°; fclia rather wide, oblique, ciliate about 1/2 way with 3 to 5 strong br; vbr strong, dec, above om; vbrax scarcely or but slightly less than antax, latter 2/3 hh; prb about hh; plp long, moderately stout, somewhat widened at tip ♀; ant inserted near upper level of eyes; 2ant elongate; 3ant ♀ little over 2x 2ant and little wider than latter; ar short, bare, thickened to pointed tip, 2ar over 1/3 length of 3ar; eyes bare, obliquely set, descending to vl; ♀ vtx well over 1/3 hw, fr widening into fc; fc equilateral, rather over 1/2 hw; frs in 2 rows ♀, 3 or 4 below ba; 2 strong vrs ♀, inner not dec; 2 strong pfro and rfro ♀; frlia equilateral ♀, narrower than pfrw; ocs strong, proclinate-divaricate; pfrlia narrowed posteriorly, setose, hairs longer on outside; pfclia narrowed below ♀, equal to cw in middle, with row of hairs next eye margin and outside of fco row; 1 row of 3 to 5 strong fco and some weaker

ones interspersed; ch 1/3 el; thx narrower than hd; prsc shorter than posc; 4 strong st; 3 pi, pra, poa and ls; 4 ps; aps erect, dec, shorter than the heavy long equal ls; 1 moderate-size ds; cs very short; R1 bare; R5 br only at base; 5R narrowly open far before tip; cub an angular ra or less, 2/5 ww from hm; M1 strongly bent in at base; M2 prolonged in short stump or wrinkle; M3 gently sinuate or crooked, nearer to cub; C1 bare, 1sec not 1/2 preceding; sq moderately large and wide, rounded-subangular or inner corner; legs not long, htib weakly subciliate; middle mtar fully equal to foljts; ♀ ftar normal; abd ovate, as wide as thx; 1 mm on 1st 2 segs, m row on 3seg, 4seg covered with br; ♀ hyp normal.

Eophrissopolia acroglossoides, new species.

Lbd, 10-1/2 to 11-1/2 mm.; lwg, 8 to 9 mm. 2 ♀, Grove Hill, Maryland, Oct. 31 and Nov. 2, on flowers of *Aster.*

Hd thinly silvery, ch and pfrlia with more or less of a brassy tinge; frlia brown; 1st 2 ant joints and base of 3ant fulvo-rufous; rest of 3ant and ar black; plp fulvous; thx blackish, silvery pollinose with scarcely a tinge of brassy; 4 black thvtt, inner narrower and shorter; sct testaceous beneath the thin pollen; abd blackish, thinly silvery, 4seg with more or less of brassy tinge; legs blackish, tibiae broadly fulvous; wings nearly clear; sq whitish.

Frontinogaedia, new genus.

Genotype, *Baumhaueria analis* van der Wulp, Wisconsin.

Differs from *Chaetogaedia* BB by ar thickened to tapered tip, 2ar very long; htib subciliate, with 2 longer br; 1 short md on intsegs.

Tribe VORIINI

Catalinovoria, new genus.

Genotype, *Catalinovoria cauta,* new species.

Hd a little wider than high; frprf considerably less than fcprf, flat, gently sloping; ocprf somewhat bulged below; clp nearly flush, almost 2x as long as wide; no fccr; ep wide, not very long, well warped; fclia bare, straight, narrow, cordlike; vbr near om, dec; vbrax over 3/4 antax, latter over 1/2 hh;

prb about hh, not very stout, 1b small; plp elongate, moderately stout, but slightly thickened at tip ♂; ant inserted near upper level of eyes; 2ant short; 3ant ♂ 4x 2ant, moderately wide; ar shorter than 3ant, thickened to tip, bare, 2ar elongate, tip sharply pointed; eyes bare, rather short, descending well short of vl; ♂ vtx only a little less than 1/2 hw; fc and fr equilateral, well over 1/2 hw; 2 well separated frs below ba; 2 vrs ♂, inner not dec; 3 strong pfro and 2 rfro ♂; frlia short, broad, widened posteriorly, exceeding pfrw; ocs strong, proclinate-divaricate; pfclia bare, a little narrowed below, about 2/3 cw in middle; ch 1/3 el; 3 st, pi, ps, pra, poa and ls; aps represented by erect pair of straight spines; 1 separated reclinate ds; wings short, moderately wide; cs distinct; R1 br to tip, except stigmal space bare and 1 br at tip; R5 br to well beyond M3; 5R closed far before tip; cub angular, nearer to front margin than to hm; M1 waved, almost in line with M3; M2 produced in long stump, nearly or quite as long as M3; M3 nearer to cub, oblique and lightly sinuate; C1 with 3 br at base, 1sec fully equal to preceding; sq subangular on inner corner; legs not long, htib not pectinate; middle mtar equal to foljts; ♂ cls not very long, about equal to last tarsal joint; abd ♂ truncate-subconic; no mm on 1st 2 segs, m row on last 2 segs.

Catalinovoria cauta, new species.

Lbd, 7 mm.; lwg, 5 mm. 1 ♂, Sabino Basin, Santa Catalina Mts., Arizona, Oct. 3, on flowers of *Baccharis*.

Hd silvery-white pollinose; frlia and occiput ashy-gray; 1st 2 ant joints and base of 3ant rufous, rest of 3ant and ar black; plp fulvous-yellow; thx and sct silvery-cinereous; 4 dark thvtt, inner linelike; abd black, subshining, last 3 segs rather thinly ashy except hind borders; legs black; wings clear; sq nearly white.

Tribe GYMNOCHETINI

Echinosomopsis. New name for **Echinosoma** Girschner (preoc.).

Genotype, *Echinosoma pectinata* Girschner, Europe.

Tribe ERNESTIINI

Xanthoernestia, new genus.

Genotype, *Xanthoernestia antennalis,* new species.

Hd narrow, scercely wider than high, much narrowed below eyes; frprf a little longer than fcprf, faintly arcuate; fcprf short, faintly concave; orprf as long as frprf, beveled on anterior 1/2; ocprf well swollen below; clp nearly flush, short, scarcely 1-1/2x as long as wide; no fccr; ep not very wide, cut off short, faintly warped; fclia bare, slightly oblique, moderately wide below; vbr dec, on om; vbrax equal to antax, latter little over 1/2 hh; prb scarcely hh, 1b very large; plp stout, subcylindric, nearly as long as ant; 2ant short; 3ant ♀ scarcely over 2x 2ant and no wider than same, tip evenly rounded in profile; ar short, bare, thickened 1/4 way, bowed, bjts short; eyes thinly pilose, short; ♀ vtx about 1/4 hw, fr widening rather rapidly; fc in middle fully 2/3 hw; frs in single row, stopping nearly at ba, the front 1 slightly in advance of same; 2 vrs ♀, inner dec; 2 pfro and 1 rfro ♀, the latter divaricate; frlia short, narrowed posteriorly, hardly equal to pfrw; ocs weak, approximated, proclinate; pfrlia hardly narrowed posteriorly, faintly setose; pfclia bare, equilateral, nearly 1/2 cw; ch fully 1/2 el; 2 to 4 gno; thx just as wide as hd; prsc much shorter than posc; 2 st and ls; 3 pi, ps, pra and poa; aps long, erect, dec; 1 rather strong ds; cs extremely short; R1 bare, terminating a little beyond R6; R5 br only at base; 5R open only a little before tip; cub V-like, rather over 1/4 ww from hm; M1 strongly arcuate, more so at base; M2 prolonged in short stump; M3 sinuate, nearer to cub; C1 bare, 1sec very short; sq small, rounded behind, subangular on inner corner; legs short, htib not pectinate; mtar not equal to foljts; ♀ ftar not widened; abd ovate, wider than thx; no mm on 1seg; 1 mm and 1 md on 2seg; m row and 1 md on 3seg; m and 2 irregular d rows on 4seg; all abd macrochaetae weak and short.

Xanthoernestia antennalis, new species.

Lbd, 7mm.; lwg, 6-1/2 mm. 1 ♀, Base Mt. Washington, New Hampshire, August 25, on flowers of *Anaphalis.*

Hd brassy-silvery pollinose, ch grooves more deeply colored; pfrlia shading darker in front view; frlia dark brown; ant and ar orange-yellow, basal ant joints lighter yellow, ar brownish before middle; plp fulvous; thx and sct moderately silvery pollinose; 4 black thvtt, inner only a little narrower than outer; abd blackish, with posterior 1/2 of 4seg fulvous-yellow, the whole thinly silvery pollinose including 1seg; legs brownish-rufous; wings clear; sq white, narrowly edged with yellow.

Tribe LARVAEVORINI

Oxydosphyria, new genus.

Genotype, *Oxydosphyria infernalis,* new species.

Hd as long as high, wider than high, narrowed below eyes; frprf longer than fcprf, flat, sloping; fcprf strongly concave, especially below; orprf long, gently beveled anteriorly; ocprf somewhat swollen below; clp flush, bulged above, about 1-1/2x as long as wide; no fccr; ep somewhat wider than long, strongly projected, nearly in horizontal plane; fclia bare, bowed, nearly in clypeal plane, not wide; vbr strong, dec, not above om but far removed from same; vbrax scarcely exceeding antax, latter about equal to hh; prb well over hh, slender, corneous, 1b small; plp very long, absolutely filiform; ant inserted distinctly above em; 2ant very long ♀; 3ant ♀ only 1/2 length of 2ant, as wide at tip as long; ar short, bare, thickened to tapered and pointed tip, 1ar and 2ar long, and equal; eyes bare, small, in profile hardly 2x as long as wide; ♀ vtx well over 1/3 hw; fc about 2/3 hw in middle; 2 to 4 frs below ba, in widely divergent row; 2 vrs ♀, inner not dec; ♀ with 3 pfro, hind one weak; row of about 4 rfro ♀, hind 2 strongest; frlia pilose on outer parts, narrowed some posteriorly, about 2/3 pfrw; ocs absent; pfrlia some narrowed posteriorly, sparsely black-hairy; pfclia less than cw, black-setose, narrowed in middle; 2 to 3 fco; ch 2/3 to 3/4 el; thx as wide as hd; prsc nearly as long as

posc; 3 st, pi, pra, poa and ls, the last strong and long; 4 ps; aps quite strong, dec, with a pair of spines in front; 1 ds and spines; cs very small; R1 bare, terminating far beyond R6; R5 br only at base; 5R open far before tip; cub a ra or slightly acute, near middle of ww; M1 bent in strongly at base; M2 with a clouded wrinkle at end; M3 sinuate, nearer to cub; C1 bare, 1sec 1/2 preceding; sq not large, widened posteriorly, inner corner subangular; legs short and stout; htib not pectinate; middle mtar equal to foljts; ♀ ftar only faintly widened; abd hardly wider than thx; no mm on 1seg; 1 mm on 2seg; m row on 3seg; m and d rows on 4seg, thickly set.

Oxydosphyria infernalis, new species.

Lbd, 13 mm.; lwg, 10 mm. 2 ♀, Hell Canyon, Manzano Mts., New Mexico, Sept 10-12, on flowers of *Melilotus.*

Hd silvery-whitish, pfrlia light tawny-golden; frlia fulvous to light yellow; ant brownish-black, the articulations narrowly reddish; plp yellow; thx brownish, thinly brassy pollinose; 4 dark thvtt with a metallic greenish tinge, inner narrow; sct testaceous beneath pollen; abd orange-yellowish, shading to rust-yellow on median line and posterior 1/3; legs black, tibiae fulvous; wings clear, base and long veins yellow; sq pale golden-yellow.

A NOTE ON PHALANGOMYIA DYAR & KNAB

(Diptera, Culicidae)

By HARRISON G. DYAR

This peculiar subgenus of *Culex* has remained represented by but a single species. A second species has come to hand, and it seems probable that *Phalangomyia* is the only group of *Culex* occurring on the west coast of South America, except of course the domesticated *Culex quinquefasciatus.* The *"Culex"* described from Chile by Blanchard and Philippi are mostly all *Aëdes* or *Psorophora* (Ins. Ins. Mens., xii, 128, 1924); but there remains one apparently properly referred to *Culex.* Recently the Museum has received from Fr. Anastasio

Perion a pair which agree with Philippi's brief description of his *Culex articulatus*. It is probably that species, and falls in *Phalangomyia*. The present status of this subgenus is as follows:

Culex (Phalangomyia) debilis Dyar & Knab.

Phalangomyia debilis Dyar & Knab, Ins. Ins. Mens., ii, 58, 1914.
Culex (Phalangomyia) debilis Dyar, Ins. Ins. Mens., vi, 93, 1918.

The very peculiar genitalia are figured in the last reference cited. The species comes from Peru. It is possible that *Culex escomeli* Brèthes (Rev. Chil. Hist. Nat., xxiv, 41, 1920), also described from Peru, is this same species; but I do not know *escomeli* in nature.

Culex (Phalangomyia) articulatus Philippi.

Culex articulatus Philippi, Verh. zool.-bot. Ges. Wein., xv, 596, 1865.
Culex articulatus Theobald, Mon. Culic., v, 400, 1910.
Culex articularis Dyar, Ins. Ins. Mens., xii, 128, 1924.

The pair from Fr. Perion are from Perales, Chile, May, 1925. The thorax has a rather distinct pattern, three central dark lines and dark shoulder patches, relieved by whitish scales, the anterior angles dull golden scaled. The legs are long, the femora and tibiae with distinct yellowish white tips. Abdomen with broad white basal segmental bands.

Male hypopygium. Similar to that of *debilis* (Ins. Ins. Mens., vi, Plate iii, fig. 1, 1918). Clasper slender, evenly curved, somewhat membranously widened outwardly, the tip narrowly triangularly widened, with a sharp spine on the inner side. Subapical cone of side piece with the appendage foliately trilobate at tip; leaf inserted within it, delicate and ribbed, shorter than in *debilis* and with a narrower stem. Ridge in center of side piece rounded, not partially separated by a cleft as in *debilis*, with a row of very stout lamellate spines with pointed tips; inner angle narrow, with three filamentous spines. Basal parts similar to those of *debilis* in general, differing in most details: Tenth sternites with the appendage larger, laminate and not marginal; mesosomal plate broadly triangular,

with a blunt median tooth and several sharp apical ones; parameres smaller, triangular and excavate within; inner plates narrow, slender, pointed.

With the extreme aridity known to be prevalent on the west coast of South America, the occurrence of *Psorophora* and *Aëdes* which pass the dry periods, even of several years' duration, in the egg state upon the ground, is reasonable. Perhaps *Phalangomyia,* peculiar to this region, also acts in this manner, contrary to the rule in *Culex.*

THE LARVA OF DENDROMYIA INTONCA DYAR & KNAB

(Diptera, Culicidae)

By HARRISON G. DYAR

Under number 27 of my list of the mosquitoes of Panama (Ins. Ins. Mens., xiii, 124, 1925), the larva of *Dendromyia intonca* is said to occur in the water in the leaf-bases of *Tillandsia,* and the species has not been reported since Jennings' original collection in 1908-9, although much collecting has been done in the smooth-leaved epiphytic Bromelias. It now appears that the occurrence of the larva in *Tillandsia* was abnormal. Mr. C. H. Bath has found, and Dr. D. P. Curry has kindly transmitted to me, these larvae in another plant, a wild pineapple, *Ananas magdalenae* (André) Standl., according to Mr. E. P. Killip of the Botanical Dept. of the National Museum. Isolations have not been yet made; but no other Sabethid was bred from the plant, the accompanying mosquitoes being *Anopheles cruzii* D. & K., and it seems indicated that this is the normal habitat of *intonca.* The plants were found far in the jungle, some three miles back of Fort Randolph on the Atlantic side of the Isthmus.

DESCRIPTION OF THE LARVA

Closely similar to the other *Hystatomyia* larvae, *circumcincta* and *coenonus.* Head round, the antennae rather long, uniform and slender. Abdominal hairs multiple, rather long, not stel-

late; lateral hairs very long. Comb of the eighth segment of about fifty scales in a deep patch, posterior scales long and slender, anterior ones very small. Air tube long, slender, tapering and curved, with many long single hairs, the basal pair in three; a false pecten of about five long teeth. Upper anal tuft in three, long, medium and short; lower tuft in two; subventral tuft multiple.

A NEW CULEX FROM HONDURAS

By W. H. W. KOMP

During the spring of 1925, through the courtesy of the Medical Department, United Fruit Company, Dr. Wm. E. Deeks, General Manager, the writer was enabled to spend several weeks at Puerto Castilla, Republic of Honduras, in the study of malaria. In the course of routine mosquito collections made at that place, a number of small Culex with white-banded legs were taken about the walls of an angle of the hospital, in a rather damp and protected spot. As the town of Puerto Castilla is built on a sand fill, and is very well drained, the supposition is that these specimens came from the swampy land to the north of the hospital, as other mosquitoes, including *Anopheles albimanus,* were taken at the same times and place. Nothing is known of the life-history or larval stages.

On my return to the United States, the material was submitted to Dr. H. G. Dyar of the U. S. National Museum, who very kindly examined it, pronouncing it new, and returning it for examination and description. My thanks are due Dr. Dyar for his suggestions and assistance in this matter.

A description of the coloration and of the male genitalia is appended.

Culex (Choeroporpa) opisthopus, new species.

Proboscis moderate, scarcely expanding to tip, uniformly brownish-black labellae paler. Palpi small, slender, black. Antennae rather long, pilose, whorls of hairs long, sparse. Eyes black; occiput black, the scales black, whitish in patches in

certain lights; several long bristles between the eyes. Patches of whitish scales on sides, margin of eyes with rows of black bristles.

Mesonotum blackish brown, clothed with brown scales and rows of heavy black bristles. Scutellum trilobate, brown, with tuft of black bristles on each lobe. Postnotum black, shining, nude. Pleurae and coxae brownish, with patches of grayish scales. Abdomen subcylindrical, depressed, truncated at tip, dorsal vestiture black, with rows of pale hairs at apices of segments; small lateral white spots on sixth and seventh segments; terminal segment clothed with dense vestiture of long pale hairs.

Wings moderate, with veins densely clothed with ovate black scales.

Legs moderate; femora whitish beneath almost to tip; knees white-tipped; tibiae brownish, with long coarse pale bristles. Fore and mid tarsi brownish-black, unbanded; hind tarsi with narrow white bands at base and apex of joints; fifth joint entirely white.

Male genitalia. Clasper curved, slightly swollen at the outer third, the tip slender; spine triangular. Outer division of lobe of side piece columnar, not distinctly branched, about four distorted filaments at the apex. Inner division stout, the two filaments arising together about equally distant from the base. Tenth sternites comb-shaped with slender stems. Details of the mesosomal plates shown in the figure. Ninth tergites long, columnar, the rounded tips only with minute setae.

Two males and three females have been deposited in the United States National Museum.

SOME SAGHALIEN BUTTERFLIES: NOTES AND DESCRIPTIONS

(Lepidoptera)

By WARO NAKAHARA

Thanks to the kindness of Professor Teiso Esaki of the Kyushiu Imperial University, Fukuoka, and of Mr. Satoru

Kuwayama of the Hokkaido Agricultural Experiment Station, Sapporo, it has been possible for me to examine a fair proportion of Rhopalocera known to occur in the island of Saghalien, north of Japan. While my work was under way there appeared an extensive paper by Prof. S. Matsumura (Journal of the College of Agriculture, Hokkaido Imperial University, vol. xv, 1925) on the Lepidoptera of the same island, entirely superseding my own list which I had in manuscript. The following notes, therefore, offer no addition to the Rhopalocerous fauna of Saghalien, but they are published here for the purpose of pointing out synonymic relations of some of the subspecific names involved, and of naming and describing two subspecies, the status of which have hitherto remained undetermined.

PAPILIONODAE

Papilio bianor paradoxa Nakahara.

Papilio bianor paradoxa Nak., Bull. Brooklyn Ent. Soc., XIX, p. 38, 1924.

Papilio bianor sachalinensis Matsumura, Jour. Coll. Agr. Hokkaido Imp. Univ., XV, p. 89, pl. VIII, fig. 9, 1925.

Without doubt, Matsumura's *sachalinensis* and my *paradoxa* are one and the same subspecies.

Parnassius stubbendorfi esakii, new species.

Very close to subsp. *hoenei* Schweitz. of Hokkaido but distinctly smaller, and thus approaches the typical *stubbendorfi.* The black mark at the end of discoidal cell of forewing small, and there may be a second spot near the middle of the cell; outer margin of the wing nearly concolorous with the rest of the wing and not hyaline; no trace of the postdiscal hyaline band. The base and inner marginal area of hindwing more extensively suffused with black than in subsp. *stubbendorfi,* and the black is extended thence around the posterior border of the discal cell to unite with the small dark streak which marks the end of the cell; the basal one-fourth of the discal cell is black. The color of wings and of the pubescence is

white with distinct brownish yellow tinge. Expanse of wings: 60-62 mm.

Habitat: Saghalien.

Holotype: ♂, Toyohara, Saghalien, July 13, 1922 (T. Esaki). Paratype, ♂, Namikawa, August, 1919 (S. Kuwayama). Types in my collection.

PIERIDAE

Pieris napi saghalensis, new subspecies.

Closest to subsp. *nesis* Fruhst. of Hokkaido, differing from it as follows: Smaller in size; upperside of forewing with less conspicuous apical markings, which consist of few dark scales marking the ends of veins. On underside the discoidal cell is practically free from any dark suffusion, and the longitudinal veins, especially the second and third veins, not half as broadly marked with black as in *nesis,* and the heavy black streak on the posterior border of discoidal cell of the latter subspecies very greatly reduced in its width.

Habitat: Southern Saghalien.

Holotype: ♂, Noda, Saghalien, July 31, 1922 (T. Esaki). Paratypes, 2 ♂'s, Nairo (T. Esaki) and Tonnai (S. Kuwayama). Types in my collection.

SATYRIDAE

Lethe callipteris minima Esaki & Nakahara.

Lethe callipteris minima Esaki and Nak., Insec. Inscit. Menst., XII, p. 56, pl. III, fig. 8, 1924.

Lethe callipteris karafutonis Matsumura, Jour. Coll. Agr. Hokkaido Imp. Univ., XV, p. 93, pl. VIII, fig. 14, 1925.

Minima and *karafutonis* are unquestionably identical.

NYMPHALIDAE

Argynnis ino parvimarginalis, new name.

Argynnis ino karafutonis Matsumura, Jour. Coll. Agr. Hokkaido Imp. Univ., XV, p. 101, pl. IX, fig. 12, 1925.

The new name is offered to replace *"karafutonis,"* which is

preoccupied by *A. thore karafutonis* Matsumura (Thousand Insects of Japan, Addit., vol. III, p. 586, 1919).

Argynnis pales neopales, new name.

Argynnis pales sachalinensis Matsumura, Jour. Coll. Agr. Hokkaido Imp. Univ., XV, p. 100, pl. VIII, fig. 14, 1925.

This subspecies, and three others to follow, are renamed because of their names being preoccupied by *Argynnis euphrosyne sachalinensis* Matsumura, Ent. Zeitschr., Stuttg., XX, p. 160, 1908. It is an unfortunate fact that the same designation *"sachalinensis"* was used for so many subspecies of the same genus when the International Rule provides that a name can be valid only for one species or one subspecies in a genus.

Argynnis aglaia matsumurai, new name.

Argynnis aglaia var. *sachalinensis* Matsumura, Jour. Coll. Agr. Tohoku Imp. Univ., p. 43, 1911 (preoccupied).

Argynnis cydippe satakei, new name.

Argynnis adiphe (sic !) var. *sachalinensis* Satake, Ent. Magaz., Kyoto, p. 124, 1916 (preoccupied).

Argynnis paphia ab. **virescens,** new name.

Argynnis paphia neopaphia ab. *sachalinensis* Matsumura, Jour. Coll, Agr. Hokkaido Imp. Univ., XV, p. 102, 1925 (preoccupied).

Judging from the description this seems to be a female aberration of subsp. *neopaphia* corresponding to ab. *valesina* Esp. of subsp. *paphia* of Europe.

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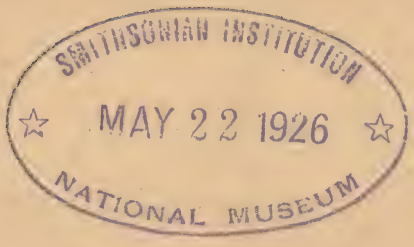

Insecutor Inscitiae Menstruus

Vol. XIV **APRIL–JUNE, 1926** **Nos. 4–6**

BUTTERFLIES FROM THE SOUTHERN KURILE ISLANDS

By WARO NAKAHARA

In the following lines are listed some Lepidoptera Rhopalocera collected in Kunashiri and Shikotan Islands of the Kurile group by Mr. Kyusaku Doi of the Hokkaido Imperial University, Sapporo. The collection, though small, is of some significance because of the paucity of our knowledge of the Lepidopterology of these islands, and I wish to express my sincere thanks to Mr. Doi who has kindly placed it at my disposal.

Family PAPILIONIDAE

Papilio machaon septentrionalis Verity.

Papilio machaon race *septentrionalis* Verity, *Rhopalocera Palaearct.*, Suppl., p. 299, pl. LXI, figs. 10 and 11, 1909.

The single female specimen from Kunashiri Island is evidently to be referred to subsp. *septentrionalis,* being in no way different from the common Hokkaido specimens.

Papilio machaon sachalinensis Matsumura.

Papilio machaon race *septentrionalis* Verity, Rhopalocera Palaearct., Suppl., p. 299, pl. LXI, figs. 10 and 11, 1909.

A single male specimen from Shikotan Island. This specimen, though badly damaged, is apparently that of subsp. *sachalinensis,* with a marked fuscous suffusion at the base of forewings, underside.

Family SATYRIDAE

Lethe diana (Butler).

Debis diana Butler, Journ. Linn. Soc., Zool., p. 55, 1866.

Kunashiri Island, four specimens. These are identical with the typical *diana* from Hokkaido.

Lethe callipteris obscura, new subspecies.

Similar in size to subsp. *minima* Esaki and Nakahara, Insec. Inscit. Menst., XII, p. 56, 1924 (Syn.: Subsp. *karafutonis* Matsumura, Journ. Coll. Agric. Hokkaido Imp. Univ., XV, p. 93, 1925) and much smaller than subsp. *diluta* Esaki and Nakahara from Hokkaido. The ground color of the wings, upperside, is very dark shade of fuscous, and not yellowish brown as in other subspecies; the yellowish markings as in *minima* but the macular band of hindwing, containing the dark round spots, is reduced. Underside also distinctly darker and not pale ochraceous as in other races; the eye spots on hindwing as small as, or smaller than in *minima.*

Habitat: Kunashiri Island.

Holotype, ♂, Nikishiro, Kunashiri, August 11, 1925 (K. Doi). Allotopotype, ♀. Paratopotypes, 4 ♂♂. Types in the collection of the author.

Pararge achine karafutonis Matsumura.

Pararge achine var. *karafutonis* Matsumura, Thousand Insects of Japan, Addit., III, p. 28, 1919.

1 ♂, Shikotan Island.

Erebia sedakovii doii, new subspecies.

The muscular band of forewing, upperside, is light fulvous, like that of subsp. *nipponica* Janson, but the shape of the band is more like that of *scoparia* Butler, with a distinct constriction at about the fourth interspace. Hindwing practically always devoid of fulvous markings. The grayish brown postdiscal belt of hindwing, underside, is like the similar belt in *scoparia,* being fairly uniform in its width, but is considerably wider, so that the series of whitish dots are well within this belt, instead of being at the edge of it as in *scoparia.*

Habitat: Kunashiri Island.

Holotype: ♂, Furukamappu, August 15, 1925 (K. Doi). Paratopotypes: 4 ♂♂. Types in the collection of the author.

Family NYMPHALIDAE

Argynnis laodice ferruginea Watkins.

Argynnis laodice ferruginea Watk., Ann. Magaz. Nat. Hist., p. 456, 1923.

Three specimens; Kunashiri Island.

Family HESPERIDAE

Pamphila silvius shikotanus, new subspecies.

Very close to subsp. *isshikii* Matsumura, Journ. Coll. Agric. Hokkaido Imp. Univ., XV, p. 107, 1925, from Saghalien; yellow markings are generally more extended, especially in the discal cell of forewing, and the black spot in this area is about one-half as large as in Saghalien specimens. The black area outside of the postdiscal yellow macular band is much narrower, and the latter is nearly confluent with the submarginal series of minute yellow spots, this tendency being especially marked near the apex of the wing. In hindwing the discoidal yellow spot is smaller. Underside much the same as in *isshikii,* but the submarginal black line of forewing is narrower and is more of a zig-zag than a wave.

Habitat: Shikotan Island.

Holotype: ♂, Shikotan, July 22, 1925 (K. Doi). Allotopotype, ♀.

Parnara pellucida sachalinensis Matsumura.

Parnara pellucida sachalinensis Matsumura, Jour. Coll. Agric. Hokkaido Imper. Univ., XV, p. 106, pl. VIII, fig. 4, 1925.

Three specimens, Kunashiri Island.

NOTES ON THE METALLIC GREEN TACHINIDS ALLIED TO GYMNOCHAETA, WITH KEYS AND ONE NEW CHINESE GENUS

(*Diptera*)

By J. M. ALDRICH

Up to the present time our North American species heretofore placed in Gymnochaeta have not been correctly associated with related forms from other parts of the world, and in fact

have not been in any published work clearly discriminated from each other. In the following pages I have endeavored to clear up both the generic and specific relations, although I have not taken up related non-metallic forms like Linnaemyia, Exoristoides, etc.

KEY TO METALLIC COLORED GENERA ALLIED TO GYMNOCHAETA

1. Third and fourth sternites with heavy, blunt spines; pteropleural large; four dorsocentral, two sternopleural; front prominent, nearly parallel with lower edge of head; (type, *fuscipennis,* new species) .....*Scologaster,* new genus
   Abdominal sternites without blunt spines.....2
2. Pteropleural of striking size, larger than any of the sternopleurals; three dorsocentrals; back of head flattened, wholly pollinose, with conspicuous ruff of pale hairs, not more than one row of dark hairs behind the orbitals.....3
   Pteropleural smaller than the sternopleurals; four dorsocentrals; head behind more bulging and largely metallic, with several rows of black hairs behind the orbitals, reducing the ruff to small proportions.....*Gymnochaeta* Robineau-Desvoidy
3. Epistoma strongly protuberant; third antennal joint widened apically, somewhat triangular; no appendage on the bend of the fourth vein .....*Chrysosomopsis* Townsend
   Epistoma only a little protuberant; third antennal joint not widened apically .....*Chrysotachina* Brauer and Bergenstamm

Scologaster, new genus.

Large, robust, strongly bristles, shining green flies. Head somewhat approaching a square in profile, the front long and prominent but not quite horizontal, face depressed across middle and moderately projecting below, lower edge straight but epistoma a little elevated. Antennae of medium length, the second joint almost as long as third (female), arista bare, penultimate joint short. Eyes with long pile. Parafacial bare. Facial ridges flat, bare. Palpi and proboscis ordinary. Cheek a little more than one-third eye height. Verticals two pairs, ocellars large and proclinate, frontals about 9, the upper pair small, divaricate, remainder not large, lowest two or three pairs arising toward orbit but ending at level of base of second antennal joint.

Thoracic chaetotaxy: acrostichal 2, 3 (none just before suture); dorsocentral 3, 4; humeral 3; posthumeral 1; presutural 2 (inner small); notopleural 2; supraalar 3 (2 very stout); intraalar 3; postalar 2; sternopleural 2, pteropleural 2 large (equaling hind sternopleural); scutellum with 4 marginals (the third smaller) and a small decussate horizontal apical pair. A small group of hairs below calypter near attachment.

Abdomen with discals, the third and fourth sternites bearing eight or nine strong, short spines in three transverse rows. First posterior cell open in costa, well before tip of wing, first vein bare, third with half a dozen setules close together at base. Bend of fourth vein rounded, rectangular, without appendage.

Scologaster fuscipennis, new species.

Male.—Front at narrowest (vertex) .29 of headwidth; silvery pollinose but near the vertex a little of the metallic ground color shows through. Face, cheeks and posterior orbits silvery. Antennae and palpi black. Back of head with about two rows of black hairs behind orbitals, the ruff reduced in size, white. No orbital bristles.

Thorax bright green, humeri and between on front edge somewhat silvery; pleurae subsilvery. Abdomen brilliant green, without pollen except a little on venter toward middle. First segment without median bristles, second with a marginal row of 12 and three pairs of discals one behind the other; third segment with marginal row of 14 and one or two pairs of discals (2 on one side); fourth segment with a marginal row of 12 and an irregular discal row. Second genital segment with a fan-like row of six stout but shorter spines.

Legs black, very bristly. Wings deeply and almost uniformly infuscated.

Female.—Front .34 of headwidth, otherwise as in male but the discal abdominal bristles vary slightly.

Length, 12 mm., the same in both specimens.

Described from one male and one female, from Suifu, and

one female from Mt. Omei, both in Szechuen Province, China; collected by D. C. Graham.

Type: Male, Cat. No. 28906, U. S. N. M.

Gymnochaeta Robineau-Desvoidy.

Gymnochaeta Robineau-Desvoidy, Myodaires, 1830, p. 371. Type and sole species, *Tachina viridis* Fallen.—Rondani, Dipt. Ital. Prod., vol. 3, 1859, p. 80.—Schiner, Fauna Austr., vol. 1, 1862, p. 430.—Brauer and Bergenstamm, Zweifl. Kais. Mus., part 4, 1889, p. 87; part 5, 1891, p. 13; part 6, 1893, p. 113.—Brauer, Verhandl. K. K. Ges., 1893, p. 454.

Chrysosoma Macquart, Soc. Sci. Lille, 1833 (1834), p. 255. Type and sole species *Tachina viridis* Fallen.

Chrysocosmius Bezzi, Wiener Ent. Zietung, vol. 26, 1907, p. 294, new name for *Chrysosoma* Macquart, preoccupied.

Chlorometaphyto Townsend, Insecutor Inscit. Menst., vol. 6, 1918, p. 180. Type and sole species, *Gymnochaeta vivida* Williston, equals *viridis* Fallen.

The following two species I refer to this genus, not being able to place *Gymnochaeta glauca* Karsch, Ent. Nachrichten, vol. 12, 1886, p. 339, described from Pongo Adongo, Africa.

KEY TO SPECIES OF GYMNOCHAETA

Antennae and palpi red (Eastern United States) .....*ruficornis* Will.
Antennae and palpi black (Europe and Western United States),
viridis Fallen.

Gymnochaeta ruficornis Williston.

Gymnochaeta ruficornis Williston, Trans. Amer. Ent. Soc., vol. 13, 1886, p. 302.

Coquillett in his Revision of the North American Tachinidae, 1897, p. 89, not having seen this species, erroneously placed it as a synonym of *alcedo* Loew, now placed in *Chrysotachina*. Townsend apparently never saw a specimen. In 1893, while working with Williston at the University of Kansas, I collected two female specimens on windows of the laboratory building, and Williston identified them for me. One of these is now in the National Museum collection, together with three males from Lafayette, Indiana (Aldrich); one female from Roxboro, Pennsylvania (Harbeck); and one female from Cincinnati, Ohio (collector unknown).

Gymnochaeta viridis Fallen.

Tachina viridis Fallen, Vetensk. Akad. Handl., vol. 31, 1810; Dipt. Suec., Muscides, 1820, p. 25.

Gymnochaeta viridis Robineau-Desvoidy, Myodaires, 1830, p. 371.—Brauer and Bergenstamm, Zweifl. Kais. Mus., part 4, 1889, p. 87, fig. 7; part 5, 1891, p. 317; part 6, 1893, p. 113.—Stein, Archiv. f. Naturgesch., vol. 90, 1924, p. 67.

Chrysosoma viridis Macquart, Soc. Sci. Lille, 1833 (1834), p. 256, pl. 4, fig. 6.—Meigen, Syst. Beschreib., vol. 7, 1838, p. 217, pl. 70, figs. 6-11.

Gymnochaeta vivida Williston, Trans. Amer. Ent. Soc., vol. 13, 1886, p. 312.—Coquillett, Revis. North American Tachinidae, 1887, p. 89, not seen.

Chlorometaphyto vivida Townsend, Ins. Ins. Menst., vol. 6, 1918, p. 180.

The National Museum has a series of seven specimens of both sexes from Europe, determined by Brauer and Bergenstamm and by Bezzi; these I have compared very carefully with North American specimens in deciding on the above synonymy. The male genitalia are of unusual form, especially the fifth sternite, and agree exactly in what has been called *vivida* in this country. The National Museum has the following North American material: one male, Golden, Colorado (E. J. Oslar); one female, Colorado 2030 (C. F. Baker); one male, Moscow, Idaho (Roy Fisher); two males, Bon Accord, New Westminster, British Columbia (W. R. Walton's collection, collector unknown); and one female, Creede, Colorado, 8844 feet altitude (Professor S. J. Hunter).

Chrysosomopsis Townsend.

Chrysosomopsis Townsend, Insecutor Ins. Menstruus, vol. 4, 1916, p. 11. Type and sole species, *Tachina aurata* Fallen.

Chrysosomopsis aurata Fallen.

Tachina aurata Fallen, Dipt. Suec., Muscides, 1820, p. 25.—Meigen, Syst. Beschreib., vol. 4, 1824, p. 257; Zetterstedt, Dipt. Scand., vol. 3, 1844, p. 1191.

Chrysosoma aurata Meigen, Syst. Beschreib., vol 7, 1838, p. 217, pl. 70, figs. 6-11.—Macquart, Annales Soc. ent. France, vol. 6, 1848, p. 91, pl. 3, fig. 5.—Brauer and Bergenstamm, Zweifl. Kais. Mus. part 4, 1889, p. 134, fig. 251; part 6, 1893, p. 137.

Gymnochaeta aurata Schiner, Fauna Austr., vol. 1, 1862, p. 431.
Chrysosomopsis aurata Townsend, supra.
Chrysocosmius auratus Stein, Arch. f. Naturgesch, vol. 90, 1924, p. 164.

Brauer and Bergenstamm made the mistake of taking *aurata* as the type of *Chrysosoma* Macquart, which led to some later confusion in the literature. Three specimens from Europe, identified by Brauer and Bergenstamm and by Bezzi, are in the National Museum.

Chrysotachina Brauer and Bergenstamm.

Chrysotachina Brauer and Bergenstamm, Zweifl. Kais. Mus., part 4, 1889, p. 161; part 5, 1891, p. 318; part 6, 1893, p. 113. Type and sole species, *Tachina rheinwardtii* Wiedemann.—Brauer, Verhandl. K. K. Mus., 1893, p. 454.

Eugymnochaeta Townsend, Proc. U.S.N.M., vol. 43, 1912, p. 314. Two species, type, *Gymnochaeta alcedo* Loew. Synonymy by Townsend, Insecutor Ins. Menst., vol. 6, 1918, p. 182.

Paragymnochaeta Townsend, Proc. Biol. Soc. Washington, vol. 28, 1915, p. 21. Type and sole species, *Eugymnochaeta equatorialis* Townsend.

In the following key I have been unable to place *Gymnochaeta subviridis* Van der Wulp, Tijdsch. v. Ent., vol. 31, 1892, 194; Biologia, vol. 2, 1890, p. 480), imperfectly described from a single female from Mexico.

KEY TO SPECIES OF CHRYSOTACHINA

1. Pollen of head wholly silvery, ruff white, palpi dark at base, third antennal joint wide (Eastern United States) .....*alcedo* Loew.
   Pollen of head more or less golden, neotropical species.....2
2. Ocellars absent, antennae mostly red (Peru) ..*equatorialis* Townsend.
   Ocellars present 3
3. Fourth vein drawn back towards the hind margin at the bend, forming an acute angle with a slight appendage; larger species, 10 mm. long (South America; Mexico).....*rheinwardtii* Wiedemann.
   Fourth vein bent at right angle, without appendage; smaller species, 8 mm. long (Peru).....*peruviana* Townsend.

Chrysotachina rheinwardtii Wiedemann.

Tachina rheinwardtii Wiedemann, Auss. Zweifl., vol. 2, p. 315.
Chrysotachina rheinwardtii Brauer and Bergenstamm, Zweifl. Kais. Mus., as under the genus.—Brauer, Verhandl. K. K. Mus.,

1893, p. 454.—Aldrich, Annals Ent. Soc. America, Vol. 18, 1925, p. 111.

? *Tachina ruficornis* Walker, Diptera Saundersiana, 1852, p. 304; note by Austen, Annals and Mag. Nat. Hist., vol. 19, 1907, p. 335.

? *Gymnochaeta alcedo* Loew, Van der Wulp, Biologia, Dipt., vol. vol. 2, 1890, p. 480.

What Van der Wulp called *alcedo* is known to be the same as Walker's *ruficornis,* since Major Austen has reported on both; but there is some doubt as to whether it is *rheinwardtii.* I have already published notes on the types of Weidemann, and have identified a male from Sinaloa, Mexico, in the National Museum, by comparison with them. No other material has been seen by me.

Chrysotachina alcedo Loew.

Gymnochaeta alcedo Loew, Centuries, 1869, No. 61.—Coquillett, Revis. North American Tachinidae, 1907, p. 89.—Townsend, Muscoid Flies, 1908, p. 113.

Eugymnochaeta alcedo Townsend, Proc. U. S. N. M., vol. 43, 1912, p. 314.

This is a very common species in the United States, and the National Museum contains more than forty specimens; they are mostly from Connecticut, New Jersey, Maryland, Virginia, Indiana, and Wisconsin. The extremes are Mosier, Oregon (F. R. Cole); Emigration Canyon, Utah (Aldrich), and Sierra Madre, Chihuahua, Mexico (Townsend). Fletcher reported it from Vancouver Island, British Columbia, in the 34th Report of the Entomological Society of Ontario, p. 99. Coquillett left a marginal note in his copy of his Revision to the effect that the species was reared at Orlando, Florida, by G. G. Ainslie, from *Eudamus proteus,* but the specimen is not in the collection.

Chrysotachina peruviana Townsend.

Chrysotachina peruviana Townsend, Proc. U. S. N. M., vol. 56, 1919, p. 590.

The collection of the National Museum includes seventeen specimens of both sexes, twelve being of the type lot. All are from Peru (Chosica, Lima, San Rafael, Piura), collected by

Dr. C. H. T. Townsend. The species is much like *alcedo,* but has a narrower third antennal joint, the palpi yellow to the base, the pollen of the head golden, and the ruff is almost fulvous.

Chrysotachina equatorialis Townsend.

Eugymnochaeta equatorialis Townsend, Proc. U. S. N. M., vol. 43, 1912, p. 314.

Gymnochaeta species, Townsend, Annals Ent. Soc. America, vol. 4. 13, 1911, p. 133; Proc. Ent. Soc. Washington, vol. 13, 1911, p. 161.

Paragymnochaeta equatorialis Townsend, Proc. Biol. Soc. Washington, vol. 28, 1915, p. 21.

The material in the National Museum consists of a female and two males of the type series, collected at Piura, Peru, by Dr. and Mrs. C. H. T. Townsend.

NOTES AND DESCRIPTIONS OF AUSTRALIAN CHALCID-FLIES—IV

(*Hymenoptera*)

By A. A. GIRAULT

Australrhopoideus, new genus (Ectromini).

Runs to *Paracladella* but scape clavately expanded ventrad, funicles wider than long, enlarging distad; jaw teeth acute, 1 longer. Marginal punctiform, stigmal long, postmarginal 1/3 stigmal. Lateral ocelli closer together than either is from cephalic, frons narrow. Femur 1 widened, exceeding the stout tibia whose spur is straight, unforked. Ovipositor 1/3 abdomen. Face inflexed, frons subprominent.

Australrhopoideus melleicorpus, new species.

Honey, wings subhyaline but a fuscous cloud half-way across from stigmal vein; legs, valves of ovipositor, bulla of scape and flagellum except pedicel, silvery; abdomen at distal 1/3 or more, blackish. Club equal funicle and wider than its distal joint. Pedicel subelongate, with scape purplish, dorsal edge of latter silvery. Pedicel equal next four joints which are twice wider than long, 4 twice 1, 5-6 abruptly larger but still over twice wider than long. Scape equal pedicel and funicles 1-5

united. Fore wing proximad hairless line ciliated to base, the line closed caudad by several lines of cilia. Submarginal setae rather small. Nelson.

Encyrtoidea sidneyi, new species.

As species of *Parectromoidella* as to fore wings; as genotype but antennae concolorous, of legs (2 not seen) only tarsi and basal 1/4 tibia 3 are white; marginal a bit longer, postmarginal somewhat shorter, not quite equal stigmal; discal cilia proximad hairless line very minute and faint, except 4-5 not half complete dark dense lines (10 lines in all); hairless line closed by 2-3 lines of the minute cilia beyond middle; line of discal cilia along submarginal to base of smaller cilia yet not of minute ones; otherwise about the same. Sydney, New South Wales, 28th October, 1917. Forest.

Systolomorphella laticincta, new species.

Aeneus, abdomen distinctly exceeding thorax; legs white save coxae 3 save at apex, femur 3 save very narrowly along center of sides, tibia 3 (a long cinctus) save basal 1/6, distal 1/3; other femora lightly above and below distad and tibia 2 a bit near base. Antennae brownish yellow, club and most of pedicel, black. Fore wing with a sooty cross-stripe from all of stigmal vein and over more than basal half of post-marginal, the distal margin nearly straight, the proximal margin forming the sides of a large triangle whose apex is nearly opposite base of marginal vein; a second cross-stripe at apex, nearly as long as the moderate space between it and 1, the two narrowly joined along hind margin. Ring-joint half of funicle 1, latter smaller than pedicel, equal 2, somewhat wider than long, 6-7 same but larger. Scaly, propodenum smooth, with a median carina; pilose; abdomen 6 largest by far, quadrate. Femur 3 crenulate above and below from before middle, below forming about 7 small, obtuse teeth. Eyes hairy. Jaws acutely bidentate. Scrobes weak. National Park, December, 1921, Hacker.

Stomatoceras palgravei, new species.

Black, red as follows: Funicle 1, abdomen 2-3 (only distal ½ of 2 above), 3-4 below and ventral meson of rest, tegulae

and legs save a spot above on coxa 3, a long mark on femur 1 toward apex laterad and a large mark on lateral femur 3, distal 2/3 near dorsal edge (narrowing proximad, extending to about the upper middle). Teeth of scutellum very strong. Fore wing with cross-stripe from the marginal, looped over to costa distad of venation. Postmarginal equal marginal, stigmal subsessile. Femoral furrow cross-striate. Pedicel equal funicle 1, latter long but shorter than following joints. Brisbane, H. Hacker.

Aplatygerrhus dentatifemur, new species.

Aeneus, tibiae save 1-2 above more or less near base, trochanters, tarsi reddish brown, also funicle; forewing with a fuscous cross-stripe from proximal 2/3 postmarginal vein (as wide as the elongate stigmal is long), this with a large triangular prolongation from middle of its proximal margin (to opposite middle of marginal); hind margin also infuscated opposite apex submarginal and both margins distad of the cross-stripe. Abdomen nearly twice the thorax, fuzzy but above only to apex from 6. Parapsidal furrow not much more than half complete. Postmarginal equal marginal, elongate, stigmal 1/3 shorter. Propodeum with spiracular sulcus and median carina. Thorax pilose. Abdomen 6 largest. Discal cilia to base of wing save caudad. A large but faint stain centrally in wing opposite base of marginal. Scape thick, clavate, serrate above; pedicel equal funicle 2, 1 cup-shaped, smallest. Femur 3 somewhat swollen, excised beneath at apex, ridged beneath, this ridge convexed toward the excision and serrate (about 6-10 equal serrations before excision). Maxillary 4, labial, 3-jointed. Lateral ocelli more separated than distant apart from cephalic. Funicles mostly quadrate. Mount Wellington, Tasmania, 2-12-17, G. H. Hardy.

Ovidia, new genus (Callimomidae).

Head a little wider than long, face plain, frons from above quadrate or nearly, antennae inserted upon its cephalic margin, thus much over half up the eyes and much above middle of face; cheek short. Prothorax long, conical, the head at its

apex upon a short neck; prothorax exceeding the cylindrical scutum, latter projected beyond the parapsides for nearly half its length, furrows distinct, scutellum smaller but somewhat similar to scutum, simple. Propodeum long, with a median line of foveae, no lateral carina, spiracle cephalad. Abdomen sessile, narrowed at base, compressed, ovipositor as long as body, valves feathery; abdomen 2 apparently divided into a ventral tongue which extends along meson to apex and a dorsal, narrow flap which has a long tongue to middle of abdomen, other segments not long. Marginal elongate, stigmal very short, oblique, postmarginal over twice stigmal. Antennae 11-jointed, one ring-, one club, scape rectangularly exfoliate, flagellum uniform in width, compressed. Antennae inserted on either side of median line, far from eyes. Head resembles that of *Aeschylia* Girault.

Ovidia conicicollis, new species.

Purple, head green, sides of abdomen at middle, tarsi, tibiae 1-2, red, venation black, wings subhyaline; ovipositor valves with a long white annulus beyond middle, a bit over half the black distad of it. Ocelli in a curved line, central, lateral about half way between eye and cephalic. Funicle 1 cupshaped, somewhat longest, rest more or less quadrate; pedicel very small, subglobular; club ovate, exceeding funicle 1. Face with dense pin-punctures, frons and scutum reticulated very finely. Nelson, May, 1920, A. P. Dodd.

Secodella ovativentris, new species.

Characterized by the shape of the abdomen which is a bit smaller than thorax, ovate and somewhat compressed, no stylus, the ovipositor valves inconspicuous. Blue, wings clear, postmarginal a bit exceeding stigmal; tibial tips, basal 3 joints tarsi, white. Funicles somewhat wider than long, 1 a bit the smallest, pedicel somewhat longer. Jaws with 2 equal acute teeth and an inner, obtuse, very small third. Second ring-joint obscure. Wynnum, Q., forest, July 31st, 1921.

Parooderella simplicifrons, new species.

As *atera* Girault but less robust, frons convex and simple,

lateral ocelli midway between eye and cephalic (in other twice closer to eye), fore wing subhyaline along distal half, with the two terminal bristles of submarginal short, a few discal cilia near apex; fore wings almost half shorter. In both, pronotum with a median channel, abdomen widest before apex, axillae elongate, scutellum narrow, very acuminate cephalad, club solid, long. Kuranda, Q., A. P. Dodd.

This genus has been described before.

Raphaelonia, new genus (Entedoninae).

Like *Pleurotropomyiia* but stigmal, postmarginal short, equal, scutum with complete, foveate (broken) grooved line, propodeum with a ridgelike median, no lateral carina, the minute spiracle embraced by a sulcus along cephalic margin which just laterad of spiracle curves caudad. Parapsidal furrows deep, complete. Scutellum simple. Petiole short, abdomen ovate, 2 short, equal to the last. Jaws with 3 large acute teeth decreasing in size from 1-3. Ring-joints large, subequal, club 2 nippled at apex.

Raphaelonia sulcatiscutum, new species.

Brilliant purple, scutellum green, wings clear save stigmal knob, veins dark, legs whitish save coxae; scape yellowish along sides. Funicles 1-2 twice longer than wide, equal pedicel, 3 somewhat shorter, equal club 1 which much exceeds club 2. Face and frons smooth. Thorax scaly, cephalic scutum finely cross-lined. Segments 4-7 of abdomen finely cross-lined and with a cross-row of setae distad, setae general on 7. A female, forest, Birkdale, Q., June 30, 1921.

Anogmoidea, new genus.

As *Paranogmus* but antennae a bit above eye ends, clavate, 13-jointed, 4 unequal ring-joints, club 3-jointed; propodeum with median carina only. Head wider than thorax, clypeus striate, truncate at apex. Abdomen 2 1/5 surface, slightly notched behind at meson, 6 and 7 next longest, 3 very short. Stigmal and postmarginal veins shorter.

Anogmoidea joulei, new species.

As genotype of named genus but femur 3 dusky, antennae red-yellow; ring-joint 4 half length of funicle 1 which is a bit wider than long, others similar but increase in size distad. Jaw 4 no wider than others. Abdomen produced beneath at base. Habitus of *Paruriella.* Two females, forest, Pentland, Q., January 18, 1918.

Arthrolytus hallami, new species.

Green, wings clear, antennae except scape (except at base) and pedicel and the legs (except coxae, femur 1, tibia 1 down whole centre of one side—a spot on opposite side below knees—and an elongate spot along the middle of one side of femur 2), lemon. As description of *Apirene* genotype structurally but jaws 4-dentate, antennae central, funicle 1 longer than pedicel, nearly twice longer than wide, 6 quadrate; abdomen with a short petiole, face nonstriate. Hind tibial spur long, Tumoulin, Q., forest, March 12, 1919.

Tritneptis hemerocampae Girault.

This is a synonym of *Dibrachys boucheanus* Ratz.

Rhynchentedon maximus Girault.

The jaws are *edentate,* no teeth.

Lutheria cyanea Girault.

This is the correct specific name of this genotype and not *ajanea* as published; the venation reaches costa at apex of postmarginal which is 2/3 the stigmal, the marginal punctiform.

Systolomophella lyra Girault.

In the original description, the reference to another species of the same genus is to *dinotipennis,* published *cinotipennis.*

Axanthosoma ruskini, new species.

As *nigra* but legs as in *io,* abdomen 5 more than twice 4, latter a bit shorter than 2. Postmarginal distinctly shorter than marginal, exceeding stigmal. Clothing inconspicuous. Forest, November, Kingston.

Metapelma beenleighi, new species.

From *longfellowi:* ovipositor half longer than abdomen, the white cinctus nearly twice the apical black and about ¼; lateral ocelli distinctly farther apart than each is from median, the frons moderately wide; discal ciliation of fore wing to base but not uniformly; infuscation of fore wing clearer from apex half-way to venation and across from stigmal and distal 1/3 of marginal. Caudal ½ mesopleurum, femur 3, tibia 1, basal ¼ femur 1, femur 2 save apex, reddish; tibial spur black; tarsals 1-3 of tarsus 2, white. Funicles 2 and 3 each not quite as long as pedicel. With No. 3.

Eupelmus beenleighi, new species.

In my new table follows *insularis* and the same, pedicel and abdomen not marked with white save apex of former. Fore wings yellowish from marginal vein. Stigmal somewhat curved, subequal postmarginal. Ovipositor half abdomen. Scape, funicles 5-7 (4-6 on one side) and legs save coxae, yellow white; tibia 2, apex of others, white; venation pale; basal ¼ of ovipositor purple, distal 1/5 dusky more or less, rest white. Lateral ocelli midway between median and eye. Pubescence obscure. Abdomen widest distad of middle. Funicle 1 quadrate, 2-3 longest, shorter than pedicel. Two females, forest, Beenleigh, Nov. 27, 1922, and another, same place, December 4, 1922.

Callimomoides, new genus (Callimomoidae).

Head oval, weak, face caved, frons moderately narrow, antennae near clypeus, below eyes, 11-jointed, 2 ring-, 3 club. Jaw 3 obtuse, all short. Stigmal very short, postmarginal elongate, marginal not quite as long as submarginal. Prothorax conic, short; parapsidal furrows complete, scutellum subconvex, rounded. Propodeum very short at meson, simple, the small rounded spiracle central. Abdomen somewhat exceeding thorax, ovipositor as long as thorax. Legs slender.

Callimomoides fuscipennis, new species.

Purple, base abdomen, propodeum green, wings embrowned

except from base to bend of submarginal. Tarsals 2-4 in first two legs, 2 in last legs, apex beneath of tibiae 1 and 3 (widely in latter), white. Pedicel thrice longer than wide, a bit shorter than the elongate funicle 1, equal funicle 2, 4 shortest, widest, twice longer than wide. Scape simple, somewhat curved. Scaly, sides of propodeum fuzzy; pronotum, scutum, with scattered, short setae and several larger, scutellum with several long bristles, scutum and pronotum with scattered pin-punctures. Scutellum simple. Middle tibial spur very long, femur 2 with a stout, curved, not elongate bristle from its extreme apex. 3 ♀s, Kuranda, A. P. Dodd.

CORRECTIONS

I once published that *Zarhopaloides* Girault was *Habrolepoidea* Howard but only the second and third species of the first genus, described with its genotype, belong to *Habrolepoidea*. Also I have declared *Perissopterus* and *Aphelinus* the same but did not then know that the males differ in antennal structure; later I had a note showing the structure of the ♂ of the first but I think it has not been published. It was lost in transit during the war as were also a number of MS. notes on types and new species, both American and Australian. These, I cannot replace.

Rhicnopeltella dei, new species.

As *nubilipennis*. Frons subprominent, vertex nearly flat. Grass green, legs save coxae and femur 3 except at tip, lemon, wings clear. Ring-joints equal, 1 smaller; funicle 2 twice 1, latter twice larger than either ring-joint 2 or 3. Pedicel equal rest of flagellum minus club, latter a large head. Fringes of fore-wing not lengthened, not *very short*. Antennae whitish. Jaws with 2 equal, acute teeth and a shorter 3. Both funicles much wider than long, pedicel much exceeding either, not elongate. Note: But 3 ring- 2 funicle joints in both antennae! But I could not be quite sure of this (whether or not a very thin funicle was concealed). Forest, Morningside, June 16th, 1921.

Cerambycobius glabrivertex, new species.

As *pax* Girault but vertex glabrous, tibiae 1-2 metallic save apex. Thorax glabrous. Tarsi, tibial spur white. Forest, Beenleigh, 11th Dec., 1922.

The fourth new eupelmid collected from the same trees on the outskirts of the town and apparently of very restricted range. Seven species of the group obtained in 3 visits.

SYNONYMS OF CHALCIS

Tumidicoxella and *Tumidicoxoides* of Girault cannot be separated from *Chalcis.*

Coccidoxenus semicitripes, new species.

In my new table follows *acaciae.* Tibia 3 concolorous only at basal ½ above. As *acaciae* but femur 3 pale only narrowly at each end. Wings clear, veins yellow. Coxa 1, antenna (save pedicel above save apex and the dusky club) yellow white, also legs, save as noted. Funicles a bit wider than long, 5-6 a bit largest, shorter than pedicel. Scutum with a short pile. Lateral ocellus close to eye, far from median. Discal cilia nearly to base but not as dense proximad. Postmarginal half stigmal, with a terminal seta. Hind wings about 14 lines discal cilia. Head setae absent. Forest, Kingston, November.

Note: For *Procheiloneurus* Girault I propose the new name *Raphaelana,* the other a few years antedated.

Coelocyba varicincta, new species.

As *persimilis* but stripes 2-3 of abdomen their width apart, 1 a bit wider and its width from 2; 6 a distinct stripe, with a cephalic swelling at meson. Upper occiput with a rectangular black patch. Lateral ocellus its diameter from eye, twice it from median. Head, antennae as in *sexfasciatus.* Hind tibial spurs very unequal. Submarginal setae gross. Discal cilia absent proximad apex submarginal but several lines cephalad and caudad go some distance further proxinad. Forest, Wynnum.

Kapala astriaticeps, new species.

Lustrous black; knees, tibial tips widely, tarsi, tibia 1, venation and antennae save the long pedicel, red-brown; wings sub-

hyaline. Head opaque, practically nonstriate; scrobes sharply defined, converging channels from clypeus, antennae below eyes; lateral ocelli distinctly closer to eye than to median. Cephalad of scutellum, thorax rugulose with transverse tendency, coarser on cephalic scutum; same on scutellum but longitudinal and coarser; propleurum rugoso-punctate, thence pleurum longitudinally striate, nearly to a stout, acute, fuzzy dorso-lateral tooth on propodeum; striate finer in femoral furrow. Prongs attaining middle of abdomen, equal rest of scutellum and joined for 2/3 their length by a smooth "diaphragm." Propodeum with a rather wide median channel with a carina bounding its sides and from the base of which another to the doroso-lateral tooth; propodeum not coarse. Abdomen globose, subsessile, 2 1/3 the surface. Antennae as in *Perilampus,* 13-jointed, one ring-, 3 club-joints; pedicel over twice longer than wide, funicles over twice wider than long but 1 longer. Discal cilia distinct, dense, well toward base, the costal cell ciliated. Postmarginal faint, not as long as stigmal. Kingston, Forest, December 20, 1922.

Blastothrix suburbis, new species.

In my new table follows *australiensis.* Fore wings clear. Frons moderate; ovipositor not extruded. Purple; tarsi, knees, tibial tips (distal 1/3 tibia 2, 2/3 tibia 3), apex pedicel, yellow, funicle whitish, venation pale. Funicles 1-2 half longer than wide, rest shortening and widening, 6 distinctly wider than long, 1 a bit shorter than pedicel. Scape's dilation moderate. Sculpture very fine, opaque. Postmarginal half the long, straight stigmal. Hairless line closed by one line at hind margin, proximad of it 10 lines of dot-like cilia and from thence equal, single lines to base, cephalad and caudad. Head naked, club short-ovate, about half of funicle. Forest, Wynnum, March 1, 1922.

My genus *Anagyropsis* is *Blastothrix,* as far as I can determine, that is as far as the females are concerned.

Amonodontomerus megastigmoides, new species.

Antennas at clypeus. As *silvae* (with a ring-joint) but

funicle 1 a bit wider than long, 5 over thrice it, nearly thrice wider than long, club solid, antennas 9-jointed. Scape, pedicel save apex, femora, coxae, a (dusky) cinctus on tibia 3 just below knee, concolorous; jaw teeth straighter. Stigmal rather long, somewhat shorter than marginal, postmarginal elongate, much exceeding marginal which is as in *Eurytoma.* Abdomen 4 a bit exceeding 2-3 united, reaching a little distad of middle. Thorax finely cross-lined save apex scutellum.

Head glabrous. Resembles *Neomegastigmus.* Forest, Wynnum, March 1, 1922.

Funicle 2 in *silvae* (corresponding to 1 here) is thrice wider than long, five joints between pedicel and club.

Amonodontomerus beerwahi, new species.

As preceding but blue black, dorsal thorax with only 1-2 longish setae (moderately numerous in other), flagellum more slender, stigmal with longer neck, nearly as long as marginal; funicles 1-3 subquadrate but enlarging; jaws 2-3 short triangular, acute, *equal,* 1 distinctly larger. Dorsal thorax with short flat-lying setae. Forest, Beerwah, April 30th, 1922.

Sympiesomorphelleus marmoraticeps, new species.

Dark red, abdomen fulvous, head dusky but marmorated somewhat as thus: A narrow, bowed yellow stripe from eye to eye through median ocellus; a white spot beneath each end of this at eye, oblong and with a large, hooklike meso-dorsal projection from its ventral end; from this spot a longitudinal black loop to eye end, same side, enclosing a whitish area against the eye. Coxa 1 white, club, funicles 1 and 4, yellow white, funicles 2 and 3, pedicel black, scape dusky, white at base. Both wings embrowned. Thorax glabrous, scutum with numerous pin-punctures, few discally on scutellum, lateral groove of latter continuous, of close, isolated pin-punctures. Scutum with a long black seta disto-laterad, scutellum with 4. Propodeum with a pair of converging median carinae, meeting near apex, thence separating, also a weak and branched lateral carina. Abdomen 2 2/3 surface, petiole short. Propodeum with distinct neck. Stigmal long, equal postmarginal. Discal cilia short, to

about base of marginal from apex; a row of slender cilia under and near marginal vein. Jaws 7-dentate. Funicle 1 over twice longer than wide, 2 equal pedicel, 4 quadrate. Jungle, Little Mulgrave River, June 7, 1918.

Eusemionella burnsi, new species.

Follows *hemiptera* Girault. Scutum with cephalic 1/3 save margins, orange; mesopleurum orange; tibia 2 pale, with a purple cinctus near base somewhat exceeding the silvery at base. Flagellum mostly yellow, funicles 4-5 silvery. Purple, coxae, tarsi silvery. Pronotum, head, scutellum, axillae, orange, legs reddish or pale yellow save femur 3, latter mostly purple; tibia 3 at base (more widely) and apex silvery, also apex ovipositor. An obscure narrow orange cinctus out from base of abdomen. Tibia one obscurely purplish. Fore wing *truncate* and bears 3 lines of discal cilia against venation, the "hairless line" more linear. Jaws narrower, 3 distinctly shorter than 2 or 1. Scape, funicles 1-3 orange, pedicel dusky. Marginal linear, wings much abbreviated, distal 1/5 of fore wing deep fuscous. Basal funicles longer than wide. Cairns, forest, July.

Eusemionella divina, new species.

Wings not so much abbreviated but slender, reaching towards middle of abdomen and at distal 1/3 abruptly bent cephalolaterad in the shape of a long, stout thorn; fringeless or nearly. Marginal, therefore, not linear, not much longer than wide, ending a bit before base of the bent portion, stigmal oblique, distinct. Orange, distal 1/3 scutum save lateral margins, purple. Dilation of scape moderate, club black. Base and lateral margins abdomen, both narrowly, pedicel above at base, funicles 1-2 above, caudal end of mesopleurum, basal ½ tibia 1 above, basal 1/3 tibia 2 above, tibia 3 save beneath and apex, femora above near apex, purple. Fore wing pale brown from near base, a rather wide clear cross-stripe, oblique, toward end of submarginal, followed by 3-4 lines of coarse discal cilia, between it, the vein and the hairless line, distal 3/4 of bent portion of wing clear on caudal ½, sooty on cephalic. Coxae, palpi save apex of maxillary 4, funicles 3-6, femora (save apex of 1,

apical ½ of 2-3), silvery. Discal cilia fine, nearly to base, very fine in bent part, absent in hyaline cross-stripe. Submarginal setae moderately strong. Setae of scutum somewhat denser than those of scutellum, rather long, dark. Jaw teeth subequal. Funicles widening distad, 1 quadrate. Head setae none and very minute if present at all. Kingston, forest, 28th December, 1922. Captured from the back of my hand.

Ablerus beenleighi, new species.

Runs to *pan* but the narrow, oblique fuscous cross-stripe of fore wing from centre of the side of stigmal knob; 5-6 lines distinctly coarser cilia from marginal; face below a narrow silvery line against eye ends, save mouth widely, green, latter higher on cheeks; coxae green save apex; funicles 1, 3, club, pedicel save apex, scape save beneath, black. Funicle 1 exceeding pedicel. Fringes 1/5 width. Beenleigh, forest, 29th December, 1922.

Smicromorpha minera, new species.

White, upper thorax save propodeum and vertex, reddish yellow, occipital margin vertex dusky. Fore wings clouded lightly. Scutellum, lateral edges axillae and parapsides, lateral margins widely and distal ½ scutum, cephalic margin propodeum, coxa 3 above save each end and femur 3 (paler ventral ½) black. Abdomen brown, blotched with black. Disk of cephalic ½ scutum save median line, dusky. A reddish dot on meson of scutellum near apex. Pronotum white.

Differs from the females of the genus as follows: Frons wide, eyes nearly round, reaching half-way to mouth; antennae a bit *below* eyes; funicles wider than long, shorter than 1 which is cup-shaped; median groove propodeum absent, Meringa, Nov., jungle.

Perhaps a new genus but these forms are unstable.

Eurysystole beenleighi, new species.

As genotype but legs black save tarsi, tibia 1, knees more or less and tibial tips. Antennae black, paler towards tip, venation black, distal veins subequal. Tegulae black. Lateral ocellus

close to eye, farther from the median. Abdomen all black. Funicles much uneven, 1 smallest, half wider than long, rest widening and lengthening, 5 over thrice 1, twice wider than long, longest, all distinctly shorter than pedicel. Jaws 3-dentate 1-2 acute, equal, 3 shorter, subtruncate. Clothing and sculpture inconspicuous. Scutum not shorter than scutellum, distinctly exceeding pronotum. Beenleigh, forest, Dec. 29, 1922.

Stomatoceroides Girault.

Equals *Stomatoceras* Kirby. The genus was founded on the male which was mistaken for a female. *Stomatoceras* ♂ then, bears thick, cylindrical antennae, the pedicel small, funicle 1 elongate and a true *ring-joint* present. The female on the contrary, bears subclavate antennae, pedicel subelongate, funicle 1 more or less quadrate, no ring-joint. *Stotoceroides clariscapus* Dodd is founded on a female but funicle 1 was mistaken for a ring-joint. A *stomatoceras.*

Metadicylus, new genus (Halticopterini).

Antennae 13-jointed, 2 ring-joints, not much below middle of face; clypeus gently concaved across meson; parapsidal furrows half complete. Scutellum simple; propodeum with neck, distinctly tricarinate. Petiole subquadrate, 2 over 1/3 surface, largest, entire. Jaws 4-dentate, 4 not very wide, subtruncate, 2-3 curved. Marginal half submarginal, postmarginal and stigmal each a bit shorter in succession, latter curved, slender, knobless, only thickening distad. Antennae subfiliform, club 3-jointed.

Metadicylus australiensis, new species.

Dark aeneus, wings clear, legs brown yellow save coxae; scape yellow save apex; densely punctate. Funicle 1 nearly as long as pedicel, a bit longer than wide, longest, equal 2 and 3, rest quadrate. Ciliation of fore wing absent to base save in costal cell from about base of marginal. Legs slender; tibia 3 beneath with a long row of nearly colorless setae of moderate length. Spurs not large.

Female similar but coxae yellow, abdomen less ovate, more

elliptical. Queensland Department of Agriculture Hy No. 15. From cocoons of *Apanteles,* May 15, 1895, ? Brisbane.

Stomatoceras harrisoni, new name.

For *Stomatoceroides fuscipennis,* preoccupied.

Acroclisella clypeata, new species.

As genotype but abdomen 2 abruptly constricted (petiole only twice longer than wide), somewhat exceeding either of the next 3-4 segments which occupy most of surface; lateral carina of propodeum also proceeds to end of a distinct neck; postmarginal not twice the slender stigmal, a bit exceeding marginal; a wide spiracular sulcus with carinae for margins (its mesal, the lateral carina); coxae yellow save spot on 3 at base lateral; abdomen brown yellow, middle widely of 2 and apex 2-3 black; flagellum brown; pedicel equal funicle 1, latter quadrate; clypeus strangely bidentate at meson, the teeth triangular; parapsidal furrows simple, a bit over half complete, tegulae yellow. Coxa 3 behind with elongate hairs; dorsal thorax pilose; antennae just above eye ends. Costal cell wide, 9 lines of cilia, latter in disk extending nearly to middle of submarginal (in one midlongitudinal line well toward base); a large rectangular naked area from distal side of bend of submarginal. Densely scaly punctate. Hobart, Tasmania, G. H. Hardy, 14.3. 1917.

Cluthaira agaristae Cameron.

An entedonine. Hind, middle tibial spur elongate but not enlarged. Postmarginal a bit exceeding stigmal. Four funicle, 1 club, funicles longer than pedicel, 1 somewhat longer than wide, shorter than club. Scape rather short. Abdomen 2 half surface, polished. Petiole scabrous, a bit longer than wide. Propodeum a pair of median and a lateral carina, coarsely scaly. Scape blue, distal 1/3 tibia 3 yellow. From type through kindness of W. W. Froggatt.

Megachilochalcis marginatipennis, new species.

Legs, antennae, tegulae black; fore wing as genotype but the oblique distal margin widely clear and matched with wing 2;

pubescence silvery; horn of scutellum straight, rough, very hairy; funicle 3 thrice longer than wide, longest, 1 quadrate; entirely black, as is clothing of dorsal thorax caudad to horn. Meson of propodeum with 4 carinae. Like genotype otherwise. Samford, H. Hacker.

NOTES ON SOME SOUTH AMERICAN COCHLIDIIDAE (LIMACODIDAE)

(*Lepidoptera*)

By HARRISON G. DYAR

The receipt and incorporation of the collection of M. Paul Dognin by the National Museum makes possible the correllation of some scattered species. M. Dognin has described a number of South American Cochlidiidae, most of which passed under my eye first; however, their relationships are more obvious when all together before me. Tables are given to the species of several of the larger genera.

Family COCHLIDIIDAE

Genus **PARASA** Moore

The described South American species separate as follows:

Fore wing broadly green centrally
  Brown terminal margin twice produced inward, discally and submedianly.
    Hind wing yellow at least at costa.
      Margin of fore wing narrow; hind wing yellow to margin, *herbina* Schaus
      Margin of fore wing broad.
        Hind wing yellow nearly to margin; size large *viridiplenna* Walker
        Hind wing less yellow; size small.
          Brown margin blackish; hind wing dark except along costa ..... *cucumenica* Dyar
          Brown margin not blackish; hind wing broadly yellow over disk ..... *loyola* Dyar
    Hind wing brown
      Discal dot brown with white marking, *campylostagma* Dognin

Discal dot brown.
Margin of fore wing broad, discal dot small, *flora* Dyar
Margin of fore wing moderate; discal dot large, *laonome* Druce
Margin of fore wing narrow; discal dot moderate, *mompha* Dyar
Discal dot green, indistinct ..... *fauna* Dyar
Brown of margin only once produced inward, discally.
Hind wing yellow.
Larger; discal dot more distinct..... *mossica* Dyar
Smaller; discal dot small or indistinct..... *wellesca* Dyar
Hind wing brown.
Margin of fore wing very narrow; discal dot small, *laranda* Druce
Margin of fore wing and discal dot moderate, *imitata* Druce
Fore wing brown with a green band, at least in the female.
Fore wing with green band in both sexes.
Hind wing yellow at base.
Larger, the green band broader and more even, *cuernavaca* Dyar
Smaller; the green band tending to be constricted, *minima* Schaus
Hind wing dark, thin-scaled discally..... *maysi* Schaus
Fore wing without green band in the male.
Wings normally shaped, not strongly produced apically.
Light brown; hind wing yellow brown..... *mionexia* Dyar
Dark brown in both wings; fore wing with outer whitish line ..... *viridogrisea* Dyar
Wings in the male strongly produced at apices.
Fore wing light brown ..... *cebrenis* Schaus
Fore wing dark brown, almost uniform..... *schausi* Dyar

Parasa herbina Schaus.

Parasa herbina Schaus, Journ. N. Y. Ent. Soc., viii, 230, 1901.

From Brazil.

Parasa viridoplena (Walker).

Neaera (?) *viridoplena* Walker, Cat. Brit. Mus., Lep. Het., v, 1142, 1855.

From Brazil.

Parasa loyola, new species.

Smaller than *viridoplena,* the marginal band proportionately wider. Hind wing yellow on basal two thirds, with broad brown margin. Expanse, 27-28 mm.

Two females, Rio de Janeiro, Brazil (Schaus Collection, J. Arp).

Type: Cat. No. 28935, U. S. Nat. Mus.

Parasa cucumenica, new species.

Similar to *loyola,* darker throughout. Margin of fore wing almost blackish, the darker central shade not showing. Hind wing solidly brown on the outer half, the base yellowish, but suffused with brown. Expanse, 27 mm.

One female, Joinville, Brazil (J. Arp).

Type: Cat. No. 28936, U. S. Nat. Mus.

Parasa campylostagma Dognin.

Parasa campylostagma Dognin, Het. Nouv, l'Am. du sud, viii, 98, 1914.

From Colombia.

Parasa fauna Dyar.

Parasa fauna Dyar, Proc. Ent. Soc. Wash., x, 48, 1908.

From Colombia: Popayán (Dognin Collection); Mesopotamia, Dept. Antioquia.

Parasa mompha, new species.

Fore wing broadly green, a large basal dark brown patch on costa; outer margin narrowly yellow-brown, filled by a dark brown shade centrally, edged within by a dark brown line, incised discally and submedianly; an oval dark discal spot, lighter centered. Hind wing uniformly darkish red-brown. Expanse, 35 mm.

One female, Peru (Dognin Collection, Le Moult).

Type: Cat. No. 28937, U. S. Nat. Mus.

Parasa flora, new species.

As in *mompha;* fore wing with the outer dark margin wide, the darker central shade not or scarcely filling it. Hind wing

dark brown, a little lighter at extreme base. Expanse, 29-35 mm.

One male, one female, Para, Brazil (Moss, Baker); one male, St. Jean du Maroni, French Guiana (Dognin Collection, Le Moult).

Type: Cat. No. 28938, U. S. Nat. Mus.

Parasa laonome Druce.

Parasa laonome Druce, Biol. Cent.-Am., Lep. Het., i, 215, 1887.

Not represented in the collection U. S. Nat. Mus.

Parasa mossica, new species.

Similar to *wellesca,* larger, the terminal border of fore wing broader, especially at its discal incision, and less diluted with pale silky scales. Expanse, 33-35 mm.

Two males, Popayán, Colombia, December 28, 1895 (Dognin Collection); Colombia (Dognin Collection, Fassl).

Type: Cat. No. 28929, U. S. Nat. Mus.

Parasa wellesca Dyar.

Parasa wellesca Dyar, Can. Ent. xxxii, 347, 1900.

From Costa Rica.

Parasa laranda Druce.

Parasa laranda Druce, Biol. Cent.-Am., Lep. Het., i, 215, 1887.

Not represented in the collection U. S. Nat. Mus.

Parasa imitata Druce.

Parasa imitata Druce, Biol. Cent.-Am., Lep. Het., i, 215, 1887.

From Mexico and Guatemala.

Parasa cuernavaca Dyar.

Parasa cuernavaca Dyar, Proc. U. S. Nat. Mus., xxxii, 565, 1907.

From Mexico.

Parasa minima Schaus.

Parasa minima Schaus, Proc. Zool. Soc. Lond., 322, 1892.

From Mexico, San Salvador and Costa Rica.

Parasa maysi Schaus.

Parasa maysi Schaus, Proc. U. S. Nat. Mus., lvii, 146, 1920.

From Guatemala.

Parasa mionexia Dyar.

Parasa mionexia Dyar, Ins. Ins. Mens., xii, 19, 1924.

From Argentina.

Parasa viridogrisea (Dyar).

Euclea viridogrisea Dyar, Journ. N. Y. Ent. Soc., vi, 234, 1898.

Female type, from Mexico; associated males from Guatemala and Costa Rica.

Parasa cebrenis (Schaus)

Trabala cebrenis Schaus, Proc. Zool. Soc. Lond., 323, 1892.
Sibine lysia Druce, Biol. Cent.-Am., Lep. Het., ii, 438, 1897.

From Mexico.

Parasa schausi Dyar.

Parasa schausi Dyar, Proc. U. S. Nat. Mus., xxix, 366, 1905.

Described from French Guiana; also ranging north without perceptible change, Costa Rica and Guatemala, and south, Carabaya, Peru, Monte Christo, Amazons (Fassl).

Genus **EUCLEA** Hübner

The genus *Metraga* Walker seems untenable. I have divided the species between *Euclea* and *Talima*.

Key to South American Species

With green or yellow subbasal spot at submedian fold.
  This spot yellow, followed by red.....*aemilia* Stoll
  This spot green.
    Green marks developed, subapical and one at vein 2 also distinct; wings square at apex.
      Larger, green marks distinct, subconfluent.....*cipior* Dyar
      Smaller; green marks smaller, separated.....*cippus* Cramer
    Green marks reduced, the upper often obsolete; wings rounded at apex.
      Brown; hind wing red-brown.....*norba* Druce
      Blackish; hind wing chocolate brown.....*copac* Schaus

Without such a green or yellow spot.
Fore wing with lower median narrow silvery mark.
This line straight.
Larger, robust species.
Fore wing lustrous, without brown preceding the subapical white dots.
Fore wing dark brown in disk..*agchiatropha* Dognin
Fore wing without distinct brown shades, *peroloides* Dognin
Fore wing pale, with brown patch before subapical white line .....*pallicolor* Dyar
Smaller; thorax and abdomen less robust.
Costo-subapical dots joined into a line..*costilinea* Dyar
These dots separate (often all marks obscure).
Ground of fore wing dark blackish brown.
Silvery subbasal line distinct.....*plugma* Sepp
This line obscure.
Larger, expanse 18 mm. ..*perplexa* Walker
Smaller expanse 15 mm.....*hoboa* Schaus
Ground grayish brown, often reddish, apically, *determinata* Druce
This line wavy or angled.
Subapical silver forming a narrow straight line.
Subbasal line nearly straight, outwardly oblique from median vein downward, running to base along vein 1 .....*distrahens* Dyar
Subbasal line angled, broken or subobsolete.
Wings stoutly trigonate, markings distinct.
Subapical line angled inward below to a pale shade .....*diversa* Druce
This line directly continuous with the pale shade .....*vericrux* Dyar
Wings broadly trigonate, markings obscure.
A reddish shade within the subbasal line, *retroversa* Dyar
A reddish shade beyond the subbasal line.
Hind wing red-brown .....*poasica* Dyar
Hind wing dark chocolate ..*lamora* Dognin
Subapical silver broken, dotted or obsolete.
Fore wing, ground varied with olive brown and black, *immundara* Dyar
Fore wing, ground dark brown.
A carneous patch between subbasal and subapical silver.

Hind wing with darker veins and lighter fringe, subpellucid between.
Larger, wing broader.....*baranda* Schaus
Smaller, wing trigonate.....*jelyce* Dyar
Hind wing dark brown.....*buscki* Dyar
No carneous patch in this position; veins outwardly whitish streaked.
Subbasal silver a wide cusp with curved ends, *trichathdota* Dyar
This mark a short thick cusp..*cuspostriga* Dyar
Fore wing without silver marking.
Dark brown, no markings; tornus of fore wing obliquely cut, *permodesta* Dyar
Wing shape normal.
Fore wing blackish; a subpellucid discal area on both wings, *bidiscalis* Dyar
Fore wing yellow or red-brown, without subpellucid areas.
Fore wing yellow, lilaceous on margin..*aethes* Dognin
Fore wing brown; outer line obscure and running to base, pale or pale-edged .....*byrne* Dyar
Fore wing shades of red-brown with outer dark line.
Outer line wavy; hind wing blackish, *flexilinea* Dyar
Outer line smooth and evenly curved.
Large species; outer line thickened, *columbiana* Dognin
Smaller species; outer line slender.
Larger; expanse, 23-25 mm...*phara* Druce
Smaller; expanse 15-18 mm...*parva* Dyar

Euclea aemilia (Stoll).

Bombyx aemilia Stoll, Pap. Exot., Pl. CCCXCVII, Fig. P. 1782.
Phalaena dicolon Sepp, Surin, Vlind., Plate 83, 1848.

Not represented in the collection U. S. Nat. Mus.

Euclea cippus (Cramer).

Bombyx cippus Cramer, Pap. Exot., Pl. CIII, Fig. E, 1775.

From Trinidad, the Guianas, Colombia, Panama and Mexico (Jalapa).

Euclea cipior Dyar.

Euclea cipior Dyar, Proc. U. S. Nat. Mus., xxix, 367, 1905.

South East Peru.

Euclea norba (Druce).

Sibine norba Druce, Biol. Cent.-Am., Lep. Het., i, 211, 1887.

From Colombia, Ecuador, Panama, Costa Rica, Guatemala, San Salvador and Mexico (Misantla).

Euclea copac (Schaus).

Neomiresa copac Schaus, Proc. Zool. Sec. Lond., 1892, 324.

From Peru.

Euclea agchiatropha Dognin.

Euclea agchiatropha Dognin, Het. Nouv. du l'Am. du Sud., viii, 99, 1914.

From Peru.

Euclea peroloidea Dognin.

Euclea peroloidea Dognin, Het. Nouv. du l'Am. du Sud., ix, 34, 1916.

From Peru.

Euclea pallicolor Dyar.

Euclea pallicolor Dyar, Proc. U. S. Nat. Mus., xxix, 368, 1905.

From French Guiana.

Euclea distrahens Dyar.

Euclea distrahens Dyar, Proc. U. S. Nat. Mus., xlii, 94, 1912.

From Costa Rica.

Euclea plugma (Sepp).

Phalaena plugma Sepp, Surin. Vlind., 1848, Plate 84.

Not represented in the collection U. S. Nat. Mus.

Euclea costilinea (Dyar).

Metraga costilinea Dyar, Proc. U. S. Nat. Mus., xlvi, 391, 1914.

From Mexico.

Euclea perplexa (Walker).

Metraga perplexa Walker, Cat. Brit. Mus., v. 1129, 1855.
Neomiresa rufa Butler, Trans. Ent. Soc. Lond., 1878, 74.
Euclea zygia Druce, Biol. Cent.-Am., Lep Het., i, 216, 1887.
Euclea chiriquensis Schaus, Journ. N. Y. Ent. Soc., viii, 231, 1901.
Metraga colle Dyar, Proc. U. S. Nat. Mus., xlii, 95, 1912.

From Colombia, Panama and Guatemala.

Euclea hoboa (Schaus).

Metraga hoboa Schaus, Proc. U. S. Nat. Mus., lvii, 147, 1920.

From northern Mexico; probably a depauperate form of *perplexa.*

Euclea determinata Druce.

Euclea determinata Druce, Biol. Cent.-Am., Lep. Het., i, 216, 1887.

From Colombia, Panama, Guatemala and Mexico.

Euclea diversa (Druce).

Semyra diversa Druce, Biol. Cent.-Am., Lep. Het., i, 220, 1887.

From Guatemala and Mexico.

Euclea vericrux Dyar.

Euclea vericrux Dyar, Proc. Ent. Soc. Wash., xi, 156, 1909.

From Mexico; perhaps a variety of *diversa.*

Euclea poasica Dyar.

Euclea poasica Dyar, Proc. U. S. Nat. Mus., xlii, 94, 1912.

From Costa Rica.

Euclea retroversa Dyar.

Euclea retroversa Dyar, Proc. U. S. Nat. Mus., xxxii, 565, 1907.

From Mexico (Cuernavaca).

Euclea lamora Dognin.

Euclea lamora Dognin, Het. Nouv. du l'Am. du Sud., iii, 61, 1911.

From Colombia.

Euclea immundara Dyar.

Euclea immundara Dyar, Proc. U. S. Nat. Mus., li, 33, 1916.

From Guatemala and Mexico.

Euclea baranda Schaus.

Euclea baranda Schaus, Journ. N. Y. Ent. Soc., viii, 230, 1901.

From Colombia.

Euclea jelyce, new species.

As in *baranda;* somewhat smaller and more trigonately winged; markings somewhat finer and less distinct. Probably a northern race of *baranda.*

Eight males, Sixola River, Costa Rica (W. Schaus); Bejuco River, Panama (W. Schaus).

Type: Cat. No. 28940, U. S. Nat. Mus.

Euclea buscki Dyar.

Euclea buscki Dyar, Proc. U. S. Nat. Mus., xlii, 95, 1912.

From Panama.

Euclea trichathdota Dyar.

Euclea trichathdota Dyar, Proc. Ent. Soc. Wash., xii, 26, 1910.

From Costa Rica.

Euclea cuspostriga Dyar.

Euclea cuspostriga Dyar, Proc. U. S. Nat. Mus., xxix, 368, 1905.

From the Guianas.

Euclea permodesta Dyar.

Euclea permodesta Dyar, Proc. U. S. Nat. Mus., xxix, 368, 1905.

From the Guianas.

Euclea bidiscalis Dyar.

Euclea bidiscalis Dyar, Proc. U. S. Nat. Mus., xxix, 369, 1905.
Miresa doriens Schaus, Proc. U. S. Nat. Mus., lvii, 147, 1920.

From Panama and Guatemala.

Euclea aethes Dognin.

Euclea aethes Dognin, Het. Nouv. du l'Amer. du Sud., iii, 61, 1911.

From Colombia.

Euclea byrne (Dyar).

Metraga byrne Dyar, Proc. U. S. Nat. Mus., xlii, 95, 1912.

From Guatemala and Costa Rica.

Euclea flexilinea (Dyar).

Sisyrosea (?) *flexilinea* Dyar, Proc. U. S. Nat. Mus., xxix, 376, 1905.

From the Guianas.

Euclea columbiana (Dognin)

Sisyrosea columbiana Dognin, Het. Nouv. du l'Am. du Sud, iii, 61, 1911.

From Colombia.

Euclea parva (Dyar)

Sisyrosea (?) *parva* Dyar, Proc. U. S. Nat. Mus., xxix, 376, 1905.
Sisyrosea (?) *assimilis* Dyar, Proc. U. S. Nat. Mus., xxix, 376, 1905.
Euclea fuscipars Dyar, Proc. U. S. Nat. Mus., liv, 366, 1918.

From Mexico, Panama, Venezuela, Brazil. It appears that but one species is represented, perhaps not distinct from *phara*.

Euclea phara (Druce).

Semyra phara Druce, Ann. Mag. Nat. Hist., (7), v, 513, 1900.
Sisyrosea aphasia Dyar, Proc. U. S. Nat. Mus., xlvii, 250, 1914.

From Guatemala, Costa Rica, Panama and the Guianas.

Genus **TALIMA** Walker

KEY TO THE SOUTH AMERICAN SPECIES.

Fore wing with yellowish shaded ground between dark veins; a yellow patch at base and apex.
  Wings normal, trigonate.....*straminea* Schaus
  Wings narrow and elongate.
    Darker; hind wing more uniformly brown.....*ingenour* Dyar
    Lighter; hind wing yellowish between dark veins...*aurora* Dyar
Fore wing more uniformly colored, without yellow patches.
  Wing scaling dense; hind wing rounded.
    Outer line slender, distinct.
      Hind wing pale straw-color; a dark shade at tornus, *sulla* Schaus
      Hind wing orange tinted.
        Larger; little dark at tornus of hind wing, *latescens* Butler
        Smaller; more dark at tornus of hind wing, *massanaria* Dognin
    Outer line indistinct.
      Hind wing dark brown.....*rubicolor* Dyar
      Hind wing orange-straw color.....*emilia* Dyar
      Hind wing pale straw-color.....*ieco* Dyar
  Wing scaling thin, the veins dark-lined; hind wing produced at tornus.
    Outer line indistinct.....*postica* Walker
    Outer line distinct.....*filifera* Dyar

Talima straminea (Schaus).

Semyra straminea Schaus, Proc. Zool. Soc. Lond., 1892, 324.

From Mexico and Costa Rica.

Talima ingenour, new species.

Fore wing elongate, hind wing ovate. Ground reddish brown, veins darker; a yellowish ill-defined patch at apex and near base. An indistinct darker brown line from base parallel to inner and outer margins. Hind wing dark brown. Expanse, 22 mm.

Twenty-six males, French and British Guiana, Colombia. Type, St. Jean, Maroni River, French Guiana (W. Schaus).

Type: Cat. No. 28941, U. S. Nat. Mus.

Talima aurora, new species.

Lighter in color than *ingenour,* the ground more suffused with yellowish, especially in the hind wings, where the veins are relieved by the pale ground.

Four males, Sixola River, Costa Rica (W. Schaus); Bejuco River, Panama (W. Schaus).

Type: Cat. No. 28942, U. S. Nat. Mus.

Talima sulla (Schaus).

Nyssia sulla Schaus, Proc. Zool. Soc. Lond., 1892, 324.

From Brazil.

Talima latescens Butler.

Talima latescens Butler, Trans. Ent. Soc. Lond., 1878, 75.

From Peru.

Talima massanaria (Dognin).

Sisyrosea massanaria Dognin, Het. Nouv. du l'Am. du Sud. xxv, 33, 1924.

From Brazil; perhaps a diminutive race of *latescens.*

Talima rubicolor (Dyar).

Metraga rubicolor Dyar, Proc. U. S. Nat. Mus., xxix, 370, 1905.

From Mexico, Costa Rica, Panama, Venezuela.

Talima emilia (Dyar).

Metraga emilia Dyar, Proc. Ent. Soc. Wash., x, 50, 1908.

From Guatemala, Costa Rica, Colombia, the Guianas and Brazil.

Talima ieco, new species.

Fore wing dark purplish brown, reddish at base below; veins and outer line faintly darker. Hind wing pale yellowish straw-color, with purple tip at tornus. Expanse, 18-20 mm.

Six males, Castro Parana and São Paulo, Brazil.

Type: Cat. No. 28943, U. S. Nat. Mus.

Talima postica Walker.

Talima postica Walker, Cat. Brit. Mus., v, 1121, 1855.

From Venezuela, the Guianas, Paraguay and Brazil.

Talima filifera, new species.

Larger than *postica,* the outer line distinct; less red shading at base of fore wing.

Five males; Omai, British Guiana (W. Schaus); two, St. Jean du Maroni, French Guiana (Dognin Collection, Le Moult); Ruffenebaque, Bolivia (W. M. Mann); São Paulo, Brazil (Dognin Collection).

Type: Cat. No. 28944, U. S. Nat. Mus.

Genus **PEROLA** Walker

The South American species are related as follows:

Fore wing uniform dark brown.
- Larger; wing glossy-mottled.....*murina* Walker
- Smaller; finely white-irrorate.....*repetita* Druce

Fore wing not so colored.
- A white line below median vein and a similar submarginal one.
  - White line from base to end of vein 2.....*cuneata* Strand
  - White line from base curving to apex.
    - Fore wing very pale, marks illy contrasted.....*cicur* Schaus
    - Gray shade between the white lines distinct.....*chica* Jones
    - Costa contrastingly dark.....*burchelli* Dyar
    - Ground color entirely dark.....*brumalis* Schaus
- Not so marked.
  - Medium to small round winged species; fore wing gray-yellow to gray-brown, powdery; lines if present dark or dark edged, denticulate.
    - A pale outer line and dark streak in cell.*bistrigata* Hampson
    - A dark distinct outer line.
      - Larger, more mottled.....*sucia* Schaus
      - Smaller; less mottled.....*jorgenseni* Schaus

No distinct outer line.
"Thorax with two small white spots in front,"
cilipes Walker
No thoracic spots.
Yellowish; median marginal dots forming a dentate line .....*punctata* Walker
Carneous grayish; marginal dots separate, rounded.
Smaller; expanse 20mm..*subpunctata* Walker
Larger; expanse 30mm.....*dora* Druce
Without these characters.
Outer line running from costa to inner margin.
With two dark lines on fore wing.....*parallela* Dyar
With only one dark line (the outer).
Larger species with metallic brassy shading.
Fore wing pointed trigonate; outer line dentate without.....*brevicornis* Dyar
Fore wing less pointed; outer line sinuate, not dentate .....*nitidissima* Dognin
Smaller species without metallic marks.
Outer line pale; basal space dark filled,
sinaloensis Schaus
Outer line pale; dark edged within; a white radiating mark over discal venules,
solaria Dognin
Outer line dark, oblique; terminal space lighter .....*umber* Dyar
Outer line not reaching inner margin, retracted to base submedianly.
Smaller species; markings regular and defined.
Costa carneous shaded; veins brown lined; hind wing whitish.....*rubens* Schaus
Concolorous dark ocher; outer line uniform,
clara Dyar
Larger species; markings more or less irregular; veins dark lined only at base.
Fore wing pointed, especially in the male.
Outer line nearly straight; costa concolorous,
producta Dyar
Outer line irregular; costa pinkish shaded,
villosipes Walker
Fore wing rounded at tip.
Outer line smooth and even.
Yellow-brown; hind wing yellowish.

Smaller; outer line rather slender; ground nearly uniform,
druceoides Dognin
Larger; outer line thicker; ground paler between the lines,
laopepe Dyar
Outer line dentate, irregular or blotched, sometimes obscure.
Outer line denticulate.
Outer line broader, becoming obscure toward base.
Whitish basal area below cell indistinct.
Outer line not incised discally, ...*benedocta* Dyar
Outer line incised discally,
paraguaicula Dyar
This whitish area distinct.
Outer line broad, remote from margin.
Basal whitish area moderate..*petropolis* Dyar
This area very large, to inner margin,
regina Dyar
Outer line slender and close to margin.....*affinis* Dyar
Outer line slender, evenly denticulate to base.....*monomania* Dyar
Outer line broad, even, shaded.
Outer line broken, contrasted.
Ground washed with whitish; outer line usually well broken,
sericea Möschler
Ground not washed with whitish; outer line subcontinuos,
degenerans Dyar
Outer line continuous, obscure.
Inner base of fore wing washed with lighter.. *sibillanta* Dyar
Without basal lightening.
Dark umber brown,
penumbra Dyar

Dark red brown.
Larger; markings obscure..*platona* Schaus
Smaller; markings slightly relieved,
invaria Walker

Perola murina Walker.

Perola murina Walker, Cat. Brit. Mus., iv, 920, 1855.

From Brazil.

Perola repetita Druce.

Perola repetita Druce, Ann. Mag. Nat. Hist., (7), v, 512, 1900.

From Mexico, Guatemala, Costa Rica, Venezuela, Peru, the Guianas, Bolivia and Brazil.

Perola cuneata Strand.

Perola cuneata Strand, Fauna Exotica, i, 43, 1911.

Not represented in the collection U. S. Nat. Mus.

Perola cicur (Schaus).

Trabala cicur Schaus, Proc. Zool. Soc. Lond., 1892, 323.

From Brazil and Paraguay. Probably this and the following, *chica, burchelli* and *brumalis* are color forms of one species.

Perola chica (Jones).

Asbolia chica Jones, Trans. Ent. Soc. Lond., 1912, 439.

From Brazil.

Perola burchelli Dyar.

Perola burchelli Dyar, Proc. U. S. Nat. Mus., xxix, 385, 1905.

Not represented in the collection U. S. Nat. Mus.

Perola brumalis (Schaus).

Trabala brumalis Schaus, Proc. Zool. Soc. Lond., 1892, 323.

From Brazil.

Perola bistrigata (Hampson).

Orthocraspeda bistrigata Hampson, Trans. Ent. Soc. Lond., 1898, 259.

Perola lucia Schaus, Jour. N. Y. Ent. Soc., vii, 231, 1901.

From the Lesser Antilles.

Perola sucia Schaus.

Perola sucia Schaus, Journ. N. Y. Ent. Soc., iv, 56, 1896.

From Brazil.

Perola jorgenseni Schaus.

Perola jorgenseni Schaus, Proc. U. S. Nat. Mus., lix, 390, 1921.

From Argentina; perhaps a race of *sucia.*

Perola cilipes (Walker).

Camila cilipes Walker, Cat. Brit. Mus., Lep. Het., v, 1126, 1855.

Not represented in the collection U. S. Nat. Mus.

Perola punctata (Walker).

Candyba punctata Walker, Cat. Brit. Mus., Lep. Het., vii, 76, 1856.

Mesocia aspera Dognin, Het. Nouv. du l'Am. du Sud., xx, 29, 1922.

From Brazil and the Guianas.

Perola subpunctata (Walker).

Amydona subpunctata Walker, Cat. Brit. Mus., Lep. Het., v, 1110, 1855.

Natada sericea Butler, Trans. Ent. Soc. Lond., 1878, 75.

From Brazil and Paraguay.

Perola dora Druce.

Perola dora Druce, Biol. Cent.-Am., Lep. Het., i, 219, 1878.

Sisyrosea guaica Kaye, Proc. Zool. Soc. Lond., 1922, 995.

From Brazil, the Guianas, Venezuela, Colombia and Panama. Larger than *subpunctata;* perhaps not specifically distinct.

Perola parallela Dyar.

Perola parallela Dyar, Proc. U. S. Nat. Mus., xxix, 386, 1905.

Not represented in the collection U. S. Nat. Mus.

Perola brevicornis Dyar.

Perola brevicornis Dyar, Proc. U. S. Nat. Mus., xlii, 97, 1913.

From Costa Rica.

Perola nitidissima Dognin.

Peralo nitidissima Dognin, Het. Nouv. du l'Am. du Sud., ix, 35, 1916.

From Peru.

Perola sinaloensis Schaus.

Perola sinaloensis Schaus, Proc. U. S. Nat. Mus., lvii, 149, 1920.

From Mexico (Sinaloa).

Perola solaria Dognin.

Perola solaria Dognin, Het. Nouv. du l'Am. du Sud., ix, 34, 1916.

From Peru.

Perola umber Dyar.

Perola umber Dyar, Proc. U. S. Nat. Mus., xxix, 386, 1905.

From the Guianas and Venezuela.

Perola rubens (Schaus).

Trabala rubens Schaus, Proc. Zool. Soc. Lond., 1894, 237.

From Brazil.

Perola clara Dyar.

Perola clara Dyar, Proc. U. S. Nat. Mus., xxxii, 567, 1907.

From Mexico.

Perola producta Dyar.

Perola producta Dyar, Proc. U. S. Nat. Mus., xlii, 97, 1912.

From Costa Rica.

Perola villosipes (Walker).

Trabala villosipes Walker, Cat. Brit. Mus., Lep. Het., xxxii, 555, 1865.

From Costa Rica, Panama, Colombia, Venezuela and the Guianas.

Perola druceoides (Dognin).

Trabala druceoides Dognin, Ann Ent. Soc. Belg., xxxviii, 682, 1894.

From Ecuador.

Perola laopepe, new species.

Larger than *druceoides,* the wings broader and more ample. The outer line of fore wing is broader and set off by contrasting paler shades. Expanse, 37 mm.

Type, male, Colombia (Dognin Collection, Fassl); four other

males, three with the same data, one, Popayán, Colombia (Dognin Collection).

Type: Cat. No. 28945, U. S. Nat. Mus.

Perola actiosa, new species.

Fore wing carneous brown, marked with dark red-brown lines, much as in *druceoides* Dognin. Beyond the outer line, however, is another, equally distinct, running from apex parallel to the outer line to base. Hind wing dark brown, darker than the fore wing and contrasted. The veins in region of the cell are lined in brown as in *affinis, petropolis, platona* and *penumbra,* and there is a line on submedian fold. Expanse, 30 mm.

Type, male, Medina, Colombia (Dognin Collection, Fassl); also two males, Pacho, Colombia (Dognin Collection, Fassl), and one male, Bogotá, Colombia (Dognin Collection).

Type: Cat. No. 28946, U. S. Nat. Mus.

Perola benedocta, new species.

Ground color of fore wing light straw, a shade darker than in *affinis;* outer line dentate, even, not incised discally; veins brown lined to outer line. Hind wing orange brown as in *affinis.* Expanse, 35 mm.

Type, male, Haut Arana, San Ignacio, Missiones, Argentina (Dognin Collection, Wagner).

Type: Cat. No. 28947, U. S. Nat. Mus.

Perola paraguaicula, new species.

Smaller than *petropolis,* the ground color of fore wing less whitened; vein linings and outer line distinct, also subterminal line beyond outer line, more distinct than in *benedocta* and *affinis,* not blotted out as in *petropolis.* Expanse, 30 mm.

Type, male, Sapucay, Paraguay (W. T. Foster).

Type: Cat. No. 28948, U. S. Nat. Mus.

Perola petropolis Dyar.

Perola petropolis Dyar, Proc. U. S. Nat. Mus., xxix, 384, 1905.

From Brazil.

Perola regina, new species.

Larger than *petropolis,* the characters intensified. Lower

half of inner area below cell filled with silky whitish suffusion. Lines as in *petropolis*. Hind wing lighter, without discal rusty suffusion. Expanse, 40 mm.

Type, male, Chanchamayo, Peru (Dognin Collection); also male, Canelos, Rio Pastaza, Ecuador (Dognin Collection).

Type: Cat. No. 28949, U. S. Nat. Mus.

Perola affinis Dyar.

Perola affinis Dyar, Proc. U. S. Nat. Mus., xxix, 384, 1905.

From the Guianas. Of this species, *benedocta, petropolis, paraguaicula* and *regina* may all be subspecies.

Perola monomania Dyar.

Perola monomania Dyar, Ins. Ins. Mens., iii, 85, 1915.

From Mexico.

Perola sericea (Möschler).

Asbolia sericea Möschler, Verh. Zool.-Bot. Ges. Wien, xxvii, 671, 1878.

From Bolivia, the Guianas, Panama, Costa Rica, Guatemala, San Salvador and Mexico.

Perola degenerans, new species.

Fore wing yellowish tinged with rusty; lines brown; veins in the cell narrowly lined, a broader line in discal fold and below median vein; outer line curved from before apex to base, but somewhat blotched and broken. Hind wing uniform light brownish. Expanse, 40 mm.

Perhaps nearest *monomania* Dyar, but the outer line broadened and blotched. Suggests a small dully colored *sericea* Moschl.; but the ground color is not lightened to creams as in that species.

Type, female, San Salvador (Dognin Collection).

Type: Cat. No. 28950, U. S. Nat. Mus.

Perola sibillanta, new species.

Intermediate between *affinis* and *platona*. Fore wing red-brown, veins and outer line rusty brown, the line broad, blurred,

non-dentate; inner area lightened, yellowish. Hind wing red-brown, a shade darker than *affinis*. Expanse, 35 mm.

Male, Mogy Guassa, São Paulo, Brazil (F. G. Foetterle).

Type: Cat. No. 28951, U. S. Nat. Mus.

Perola penumbra Dyar.

Perola penumbra Dyar, Proc. U. S. Nat. Mus., xxix, 384, 1905.

From San Salvador.

Perola platona Schaus.

Perola platona Schaus, Journ. N. Y. Ent. Soc., iv, 56, 1896.

From Venezuela.

Perola invaria (Walker).

Romosa invaria Walker, Cat. Brit. Mus., Lep. Het., v, 1115, 1855.
Asbolia micans Möschler, Stett. Ent. Zeit., xxxiii, 359, 1872.

From Guatemala.

Genus **EUPHOBETRON** Dyar

KEY TO SOUTH AMERICAN SPECIES.

Hind wing red.

Median field beyond cell broadly pale, the outer line pushed out near margin.

Larger, male 34-36mm.; discal dot obscure.....*aquapennis* Dyar
Smaller, male 26mm.; discal dot distinct.....*cypris* Grote

Median field not broadly diluted.....*moorei* Kirby

Hind wing blackish.

Wing mottled and variegated; a pale patch in median field, *cupreitincta* Dyar

Wing dark at base, with ablique pale line and one across apex, *natadoides* Dyar

Euphobetron aquapennis Dyar.

Euphobetron aquapennis Dyar, Proc. U. S. Nat. Mus., xxix, 387, 1905.

The type may be restricted to the British Guiana specimen in the British Museum; but even so, it is perhaps not specifically distinct from *cypris*. Specimens are before me from Costa Rica.

Euphobetron cypris (Grote).

Eudryas cypris Grote, Can. Ent., xxv, 322, 1893.

From Paraguay.

Euphobetron moorei (Kirby).

Narosa rufotessellata Moore (not Moore, 1879), Proc. Lit. Phil. Soc. Liverp., xxxvi, 366, 1883.

Narosa (?) *moorei* Kirby, Cat. Lep Het., 529, 1892.

Euphobetron schausi Dognin, Het. Nouv. du l'Am. du Sud., i, 42, 1910.

From Brazil, the Guianas and Venezuela.

Euphobetron cupreitincta Dyar.

Euphobetron cupreitincta Dyar, Proc. U. S. Nat. Mus., xxix, 387, 1905.

From Brazil, the Guianas, Costa Rica and Guatemala.

Euphobetron natadoides Dyar.

Euphobetron natadoides Dyar, Proc. U. S. Nat. Mus., xxix, 388, 1905.

From Brazil.

Genus **ISOCHAETES** Dyar

In this genus the male antennae are bipectinate outwardly; but toward the base of the organ, one of the rows of pectinations is shortened, the branches being stout and cleft at the summit.

KEY TO THE SPECIES.

Male fore wing light tan ground with a yellowish patch beyond the cell, *beutenmuelleri* Edwards

Male fore wing dark velvety brown with purple scales; patch beyond cell lighter, not yellowish.....*marinna* Dyar

Isochaetes beutenmuelleri (Edwards).

Limacodes beutenmuelleri Hy. Edwards, Can. Ent., xix, 145, 1887.

Semyra beutenmuelleri Neumoegen & Dyar, Journ. N. Y. Ent. Soc., ii, 71, 1894.

Isochaetes beutenmuelleri Dyar, Journ. N. Y. Ent. Soc., vii, 208, 1899.

Isochaetes beutenmuelleri Dyar, Journ. N. Y. Ent. Soc., xv, 219, 1907.

Tanadema rufescens Schaus, Proc. U. S. Nat. Mus., lvii, 149, 1920.

Isochaetes beutenmuelleri Dyar, Ins. Ins. Mens., viii, 196, 1920.

Ranges from New York to Florida and Guatemala. The female is dark purplish, different in coloration from the male.

Isochaetes marinna (Dyar).

Vipsophobetron (?) *marinna* Dyar, Proc. U. S. Nat. Mus., xxix, 391, 1905.

Described from females from French Guiana. I have now before me a male from Paraguay and another from the Amazons. The male is dark purplish like the female, but with more pronounced discal markings. The female is scarcely distinguishable from that of *beutenmuelleri* except in size.

APPENDIX

Since sending the article to the printer, the following new species has been distinguished:

Perola danetta, new species.

Similar to *rubens* Schaus, and falling with it in the key. Fore wing without purplish shading, brownish ocher, the veins brown lined. Outer line as in *rubens,* softer, less distinct, less accentuated. Costa straight, not subconcave as in *rubens.* Hind wing pale straw with pale fringe, not whitish with dark fringe as in *rubens.* Expanse 27-31 mm.

Types, two males, No. 28993, U. S. Nat. Mus.; Sapucay, Paraguay, December 21, 1924 (F. Schade); Nueva Germania, Paraguay, 1896 (Hayne, Dognin Collection).

A NEW MOTH OF THE EUDRYAS GROUP FROM NEW MEXICO

(*Lepidoptera, Noctuidae, Acronyctinae*)

By HARRISON G. DYAR

Hortonius euenemus, new genus and species.

Fore wing with an aerole; fore tibiae and tarsi without spines or claws; front with a long trilobate corneous process and corneous plate below it; proboscis fully developed; eyes large, round; palpi exceeding the front, reaching the end of the corneous process; fore wing with veins 7-9 stalked from the areole, 10 on the areole.

Thorax gray; abdomen yellow dorsally, white ventrally. Fore wing white on the disk, the white reaching costa before apex; a gray band along costa, to which the rounded reniform and orbicular are fused; inner margin gray, bounded above by a darker line in submedian space, this band bends sharply below reniform, then outwardly flexed to just before apex; space beyond uniformly gray; a series of terminal black lunules between the veins, narrowly edged inwardly by pale arcs. Hind wing broadly yellow, with gray outer border, widest apically and interrupted by yellow at submedian fold; terminal marks as on fore wing, more diffused, forming a line at the gap in the band. Expanse, 34 mm.

Type, male, No. 28992, U. S. Nat. Mus.; Tucumcari, New Mexico (J. R. Horton).

A NEW GENUS OF HELEOMYZIDAE FROM CHILE, WITH KEY TO GENERA

By J. M. ALDRICH

The final appearance of Abbot Czerny's excellent Monographie der Helomyziden (Abhandl. Zool.-Bot. Ges. Wien, XV, Heft 1, 1924, pp. 1-166, 1 plate) is an event of importance in dipterology. I have not been able until recently to revise our collection by it, and in finally doing so I have found occasion to make some improvements in the extra-European portions. Czerny's work is masterly as far as his material went, which includes especially the European fauna. As the later stages of preparation came in the war and early post-war period, when communication was impossible or difficult, he did not see as much American material as would have been desirable and did not correctly understand some of Mr. Garrett's genera. As Mr. Garrett sent the National Museum several of his species, I am able to place them in a new Key.

Mr. Malloch has donated to the Museum a specimen of *Huttonomyia scutellata* Hutton, from which I learn that the genus goes in subfamily Suilliinae, not in Helcomyzinae where Czerny placed it.

Regarding nomenclature, quite serious changes have resulted from the discovery that Fallen, in his rare and long overlooked 1810 paper, had only *Musca serrata* in his genus Heleomyza (so spelled). It resulted from this that Loew's division (1862) was wrongly made, as *serrata* was excluded from his Helomyza. Thus we are in the embarrassing position of transferring the generic name Helomyza to the other subfamily where it covers the residue of *Blephariptera* Macquart (*Blepharoptera* Loew, *Leria* of recent authors) after some minor genera have been removed. The confusion will be lessened if at the time of making this change we also go back to the original spelling *Heleomyza,* which Czerny did not do.

In supplementing the work of Abbot Czerny with a new Key, I do not wish to diminish his reputation as an authority. His lifelong devotion to the family has happily culminated in a worthy monograph, on which he is to be congratulated.

Camaterus, new genus.

Head wider than high, in profile shorter than high, cheek almost half the eye height, back of head rather flat. Postverticals large and decussate; ocellars long, proclinate, nearly parallel; the usual two pairs of verticals; two pairs of frontoorbitals, the lower turned outward and a little forward; a single pair of vibrissae at edge of mouth, which is at lower edge of head. Clypeus distinctly visible in front of mouth; palpi of ordinary form, proboscis normal, smallish. Antennae somewhat separated (lunule covered), third joint orbicular, with rather short arista.

Thorax slightly elongated, the scutellum bare, convex and decidedly long, but apically rounded; its two pairs of bristles are both close to tip. Chaetotaxy: acrostichal 0, 1; dorsocentral 1, 3 (all large); humeral 1; posthumeral 1; notopleural 2; supraalar 0; intraalar 1; postalar 2, sternopleural 1, 1, 1 (three in a row); prothoracic 1 (large); mesopleura bare except for a bristle close to prothoracic; pteropleura bare.

Abdomen with five segments in both sexes; the second and third imperfectly separated in male, a row of marginal bristles on apparent third, fourth and fifth segments, larger in male.

The female has two upcurved parallel spines at tip of abdomen just as in Dichaeta, but not quite so large.

Legs rather short and stout; middle tibia with a row of bristles on outer hind side, none on outer front, apicals well developed, and some quite distinct apicals on middle basitarsus as in Eccoptomera.

Wing moderately elongated, with costal spines of average size for the family; sixth vein very thin toward tip, nearly parallel with margin but finally reaching it; third vein ending in apex; costa reaching to the fourth. Auxiliary vein much closer to first vein than usual in this family, first ending at one-third the wing length, a little before small crossvein. Hind crossvein perpendicular to axis of wing, less than its length from margin; last section of fourth vein considerably longer than preceding. Second basal cell separated from discal by a distinct crossvein, the vein closing anal cell is convex outwardly.

Type of the genus, *Camaterus dichaeta,* new species.

The genus differs from the Helomyzid type in the structure of the auxiliary vein, which is only indistinctly separated from the first. Having already, many years ago, made the mistake of confusing Geomyzids (my Siligo) with the Helomyzidae, I have compared this genus carefully with various Geomyzids, but am forced to the conclusion that it belongs in Helomyzidae. In many characters it resembles Oecothea and Eccoptomera.

Camaterus dichaeta, new species.

Male and female.—Head yellow; vertex reddish and occiput blackish; the dull red of upper frons extends back in a point each side of ocelli. Back of head with coarse entirely black hair, palpi yellow. Antennae red, third joint blackish except at base, arista pubescent.

Thorax shining brownish-black, acrostichal hairs almost large enough to be called bristles, sternopleura with a few hairs below the upper row of three bristles of which the foremost is halfway between the posterior suture of the mesopleura and the condyle of the sternopleura. Metanotum with gray pollen, a distinct small postscutellum present.

Abdomen shining black or brown; male genitalia small, female as noted above. Legs brown varying in degree of color; front coxae more or less yellow. Front femora with large bristles above and several below on outer apical part; front tibia with erect hairs in front, their tarsi short, with noticeable erect hair above in male. All claws and pulvilli rather large in male; middle femur with two rows of bristles on front side beyond middle. Hind femur with several bristles near tip close to upper edge.

Wing subhyaline with yellowish tinge.

Length of male, 3.75 to 4.5 mm.; of female, 3 mm.

Described from 3 males and one female collected at Puven, Chile, by Charles Wilhelm, a former student of mine.

Type: Male, Cat. No. 28991, U. S. Nat. Mus.

GENERA OF HELEOMYZIDAE OF THE WORLD

1. No propleural bristle, anal vein not reaching margin (subfamily Suilliinae) 2
   Propleural present, anal vein reaching margin (subfamily Heleomyzinae) 5
2. Humeral bristle present 3
   Humeral absent 4
3. Mid tibia with two large bristles side by side at the last third or fourth on the outer surface (New Zealand), *Huttonomyia* Malloch
   Mid tibia without such bristles (Europe and North America), *Allophyla* Loew
4. Doroscentrals 1-4, sternopleurals 0-1 (Europe, North America), *Suillia* Robineau-Desvoidy
   Dorso-centrals 0-1, sternopleurals 0-0 (United States), *Porsenus* Darlington
5. Middle tibia with several bristles along outer side.....6
   Middle tibia without bristles on outer side except one preapical....8
6. With 3 sternopleural bristles, one of which is near anterior edge (Chile) .....*Camaterus* new genus
   With only one sternopleural as usual, the posterior 7
7. Scutellum elongate-conical, with 3 pairs of bristles; front broad and very prominent, 2 orbitals (Uruguay, Brazil: *Thyreophorella* Hendel) .....*Diacia* Wiedemann
   Scutellum and front of usual form, 1 orbital (Europe and North America) .....*Oecothea* Haliday

8. Pteropleura bristly or hairy in part 9
Pteropleura bare 11
9. Mesopleura bare; pteropleura with a few bristles (Europe, North America) .....*Pseudoleria* Garrett
Mesopleura densely hairy, pteropleura hairy on anterior portion..10
10. A single pair of prosternals (Europe and North America), *Scoliocentra* Loew
Prosternum with numerous bristles and hairs (Bering Straits and Commander Islands) .....*Trichoclamys* Czerny
11. Humeral bristle absent 12
Humeral bristle present 13
12. No prosternals, 3 pairs scutellars (Europe, North America: *Crymobia* Loew, *Anorostomoides* Malloch). *Orbellia* Robineau-Desvoidy
One pair prosternals, 2 pairs scutellars (Europe)..*Gymnomus* Loew
13. Without prosternals 15
With one pair prosternals 14
With two or more pairs prosternals (Europe, North America: *Anymphochaeta* Czerny) .....*Heleomyza* Fallen
14. Second orbital as long as first (Europe, North America), *Anypotacta* Czerny
Second orbital shorter than first (Europe, North America: *Chaetomus* Czerny) .....*Amoebaleria* Garrett
15. Mid tibia with only one apical on inner side; anterior dorsocentral absent or small and depressed 16
Mid tibia with several apicals on inner side 19
16. First vein rather elongate, ending distinctly beyond small crossvein..17
First vein shorter, ending opposite or a little before the small crossvein as usual 18
17. With no anterior dorsocentral (Europe, North America: *Lentiphora* Robineau-Desvoidy) .....*Heteromyza* Fallen
With one or more anterior dorsocentral (Europe: *Heteromyiella* Hendel) .....*Thelida* Robineau-Desvoidy
18. With no anterior dorsocentral (Europe, North America), *Tephrochlamys* Loew
With one anterior dorsocentral (Europe) ...*Tephrochlaena* Czerny
19. With two or three anterior dorsocentrals; costal setules minute or imperceptible 20
With one anterior dorsocentral; costal setule distinct 21
20. Lateral pair of scutellar bristles much smaller than the apical (Europe) .....*Oldenbergiella* Czerny
Lateral pair of scutellars of about the same size as the apical (Europe) .....*Borboropsis* Czerny

21. Second vein joining costa only a little beyond tip of first; hind femora thickened and with a row of stout, blunt spines on postero-ventral edge (New York) .....*Lutomyia* Aldrich
Second vein joining costa far beyond first 22
22. Third antennal joint with a slight, blunt apical dorsal angle; middle femora with several irregular partial rows of stout spines in front; middle tarsi with spines at apices of segments.....23
Third antennal joint orbicular, not otherwise as described.....24
23. Eye very small; only one frontal bristle (Europe, North America), *Eccoptomera* Loew
Eye of moderate size; a second frontal about half the size of the first (North America) .....*Viatica* Garrett
24. Second frontal bristle equal to first (Europe, North America), *Neoleria* Malloch
Second frontal distinctly smaller than first.....25
25. Mesopleura with some bristles near upper hind edge, usually one quite large (Europe, North America) .....*Anorostoma* Loew
Mesopleura bare near upper hind edge 26
26. Antennal grooves distinct, giving the effect of a broad low flat carina on the middle of face (Europe, North America; *Schroederia* Enderlein preoccupied) .....*Schroederella* Enderlein
Without distinct antennal grooves (Europe, North America; *Spanoparea* Czerny) .....*Morpholeria* Garrett, *Acantholeria* Garrett

GENOTYPES

1. **Achaetomus** .....*Achaetomus pilosus* Coquillett = *Heleomyza tincta* Walker.
2. **Acantholeria** .....*Blepharoptera cineraria* Loew.
3. **Allophyla** .....*Heleomyza atricornis* Meigen.
4. **Amoebaleria** .....*Amoebaleria scutellata* Garrett. Present designation.
5. **Anorostoma** .....*Anorostoma marginata* Loew.
6. **Anorostomoides** ...*Anorostomoides petersoni* Malloch.
7. **Anymphochaeta** ....*Heleomyza nigrinervis* Wahlgren.
8. **Anypotacta** .....*Anypotacta setulosa* Czerny. Present designation.
9. **Blephariptera** .....*Musca serrata* Linnaeus.
10. **Borboropsis** .....*Anthomyza fulviceps* Strobl.
11. **Chaetomus** .....*Heleomyza flavotestacea* Zetterstedt. Present designation.
12. **Crymobia** .....*Crymobia hiemalis* Loew.
13. **Diacia** .....*Scatophaga diadema* Wiedemann.
14. **Eccoptomera** .....*Heleomyza longiseta* Meigen.
15. **Gymnomus** .....*Gymnomus troglodytes* Loew.

16. **Heleomyza** .....*Musca serrata* Linnaeus.
17. **Heteromyiella** .....*Heteromyza atricornis* Meigen. Present designation.
18. **Heteromyza** .....*Heteromyza oculata* Fallen.
19. **Huttonomyia** .....*Helomyza scutellata* Hutton.
20. **Lentiphora** .....*Lentiphora flaveola* Robineau-Desvoidy = *Heteromyza oculata* Fallen.
21. **Lutomyia** .....*Lutomyia spurca* Aldrich.
22. **Morpholeria** .....*Morpholeria melanura* Garrett = *Blepharoptera tristis* Loew.
23. **Neoleria** .....*Neoleria rotundicornis* Malloch = *Helomyza tibialis* Zetterstedt.
24. **Oecothea,** *Heleomyza fenestralis* Fallen.
(Originally spelled Aecothea.)
25. **Oldenbergiella** .....*Oldenbergiella callosa* Czerny. Present designation.
26. **Orbellia** .....*Orbellia myopiformis* Robineau-Desvoidy.
27. **Porsenus** .....*Porsenus johnsoni* Darlington.
28. **Postleria** .....*Postleria fuscolinea* Garrett.
29. **Pseudoleria** .....*Blepharoptera pectinata* Loew.
30. **Schroederella** .....*Heleomyza iners* Meigen.
31. **Scoliocentra** .....*Heleomyza villosa* Meigen.
32. **Spanoparea** .....*Heleomyza ruficornis* Meigen. Present designation.
33. **Suillia** .....*Suillia fungorum* n. sp., = *Heleomyza rufa* Fallen.
34. **Tephrochlaena** ....*Heleomyza halterata* Meigen.
35. **Tephrochlamys** ....*Heleomyza rufiventris* Meigen = *Heleomyza canescens* Meigen.
36. **Thelida** .....*Thelida filiformis* Robineau-Desvoidy = *Heteromyza atricornis* Meigen.
37. **Thyreophorella** ....*Scatophaga diadema* Wiedemann.
38. **Trichochlamys** .....*Trichochlamys borealis* Czerny.
39. **Viatica** .....*Viatica spinosa* Garrett.

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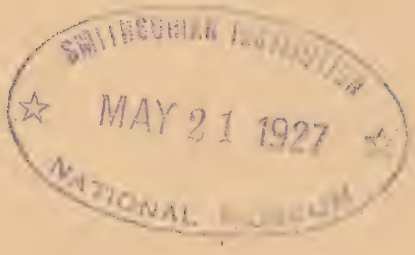


Insecutor Inscitiae Menstruus

Vol. XIV JULY–SEPTEMBER, 1926 Nos. 7–9

THREE PSYCHODIDS FROM THE GLACIER NATIONAL PARK

(*Diptera, Psychodidae*)

By HARRISON G. DYAR

Two species of Psychodids which breed commonly in cesspools, privies, sewage and garbage dumps are noted, together with a third "wild" species. The semidomesticated forms showed an excess of females, so that it is probable that parthenogenesis occurs. Some four hundred females of *phalaenoides* were accompanied by only two males. The percentage of males in *alternata* was considerably higher, though still notably low.

In his valuable work on the European Psychodidae, Tonnoir recognizes as *phalaenoides* a species with 15-jointed antennae and describes as new the common 14-jointed antennal form as *severini*. We think that when other indication is lacking Linnaeus's species should be taken to be the "common or officinal" forms, and we have therefore interpreted *phalaenoides* in this sense. The *phalaenoides* of Eaton and Tonnoir, not Linnaeus, is therefore without a name, and may be known as **tonnoiri**, n. n., described under the name *phalaenoides* by Tonnoir (Ann. Soc. Ent. Belg., lxii, 76, 1922). This synonymy is perhaps more obvious in America where *phalaenoides* is isolated than in Europe where it is accompanied by allied species.

These pretty little flies may be considered as beneficial since they consume a certain portion of human garbage throughout the civilized world.

Psychoda phalaenoides (Linnaeus).

Tipula phalaenoides Linnaeus, Syst. Nat., Ed. X, 588, 32, 1758.
Tipula nervosa Schrank, Fauna Boica, iii, 82, 2350, 1803.

Pychoda muraria Latreille, Hist. Nat. d. Crust. et Ins., xiv, 203, 1805.
Psychoda degenerans Walker, Cat. Dipt. Brit. Mus. i, 33, 1848.
Psychoda cinerea Banks, Can. Ent., xxvi, 331, 1894.
Psychoda minuta Banks, Can. Ent., xxvi, 331, 1894.
Psychoda pallens Williston, Trans. Ent. Soc. Lond., 1896, 283, 1896.
Psychoda pacifica Kinkaid, Ent. News, viii, 143, 1897.
Psychoda elegans Kinkaid, Ent. News, viii, 144, 1897.
Psychoda longifringa Haseman, Trans. Am. Ent. Soc., xxxiii, 318, 1907.
Psychoda domestica Haseman, Ent. News, xix, 285, 1908.
Psychoda severini Tonnoir, Ann. Soc. Ent. Belg., lxii, 78, 1922.
Psychoda prudens Curran, Can. Ent., lvi, 219, 1924.

The adults vary greatly in size, although all of the same sex (female). Plate I, Figure 1, represents the male hypopygium. The following localities are before me:

London, England, July 28, 1888 (E. Brunetti).
Cambridge, Massachusetts, May, 1870.
Long Island, New York (Banks's types of *minuta* and *cinerea*).
Woodside, Maryland, October 10 (J. E. Benedict).
Plummers Island, Maryland, April 28, 1903 (H. S. Barber).
Washington, D. C., September 7, 1893 (T. Pergande).
Richmond, Virginia, 1920 (W. D. Richardson).
Lafayette, Indiana, April 20, 1915 (J. M. Aldrich).
Lawrence, Kansas (J. M. Aldrich).
Beloit, Wisconsin (C. L. Turner).
Glacier National Park, Montana, August, 1926 (H. G. Dyar).
Moscow, Idaho (J. M. Aldrich).
Oxbow, Saskatchewan, April 21, 1907 (F. Knab).
Kaslo, British Columbia, June 26, 1903 (R. P. Currie).
Prince Rupert, British Columbia, June 10, 1919 (H. G. Dyar).
Seattle, Washington (Kinkaid's cotypes of *elegans* and *pacifica*).
Longmire Springs, Washington, June 10, 1917 (H. G. Dyar).
Eureka, California, May 22, 1903 (H. S. Barber).

Stanford University, California, February 2, 1906 (J. M. Aldrich).
Grand Lake, Colorado, June 20, 1923 (H. G. Dyar).
Las Cruces, New Mexico (T. D. A. Cockerell).
Las Vegas, New Mexico, July and August (H. S. Barber).
Cordoba, Mexico, 1905 (F. Knab).
Finca San Basilio, Dept. Solola, Guatemala (Dr. Morales).
Maracay, Dept. Aragua, Venezuela, August 25, 1926 (M. Nuñez Tovar).
Angol, Chile, September and October (D. S. Bullock).
Olaa, Hawaii, July 19 (W. H. Ashmead).
Cass, New Zealand (R. J. Tillyard).

Psychoda alternata Say.

Psychoda alternata Say, Long's Exp. St. Peter's Riv., App., 358, 1824.
Psychoda tripunctata Macquart, Dipt. Exot., I, i, 81, 1838.
Psychoda sexpunctata Curtis, Brit. Ent., 745, 1839.
Psychoda marginepunctata Roser, Corr. Würt. landw. Ver., i, 50, 1840.
Psychoda schizura Kinkaid, Ent. News, x, 32, 1899.
Psychoda floridica Haseman, Trans. Am. Ent. Soc., xxxiii, 316, 1907.
Psychoda nocturnala Haseman, Trans. Am. Ent. Soc., xxxiii, 319, 1907.
Psychoda albimaculata Welch, Ann. Ent. Soc. Amer., v. 411, 1912.

Plate I, Figure 2, represents the male hypopygium. Antenna of the female 15-jointed, joints 13-14 united, last small. The following localities are before me:

Franconia, New Hampshire (Mrs. A. T. Slosson).
Allentown, Pennsylvania, November 17, 1915 (P. A. Mader).
Washington, D. C., November (H. S. Barber).
Plummers Island, Maryland, August 14, 1902 (H. S. Barber).
El Paso, Texas, October, 1923 (R. E. Tarbett).
Chicago, Illinois (Welch's types of *albimaculata*).
Brookings, South Dakota (J. M. Aldrich).
Lawrence, Kansas (J. M. Aldrich).
Glacier National Park, Montana, August, 1926 (H. G. Dyar).

Seattle, Washington (Kinkaid's cotypes of *schizura*).
Las Vegas, New Mexico, August 7 (H. S. Barber).
Las Cruces, New Mexico, September, 1894 (T. D. A. Cockerell).

This larger species occurs with the smaller one (*phalaenoides*) and is always less abundant than it. Both occurred in a garbage pit at the North Fork Ranger Station, Glacier National Park. The pit was in gravel, so that the contents seldom remained wet for long.

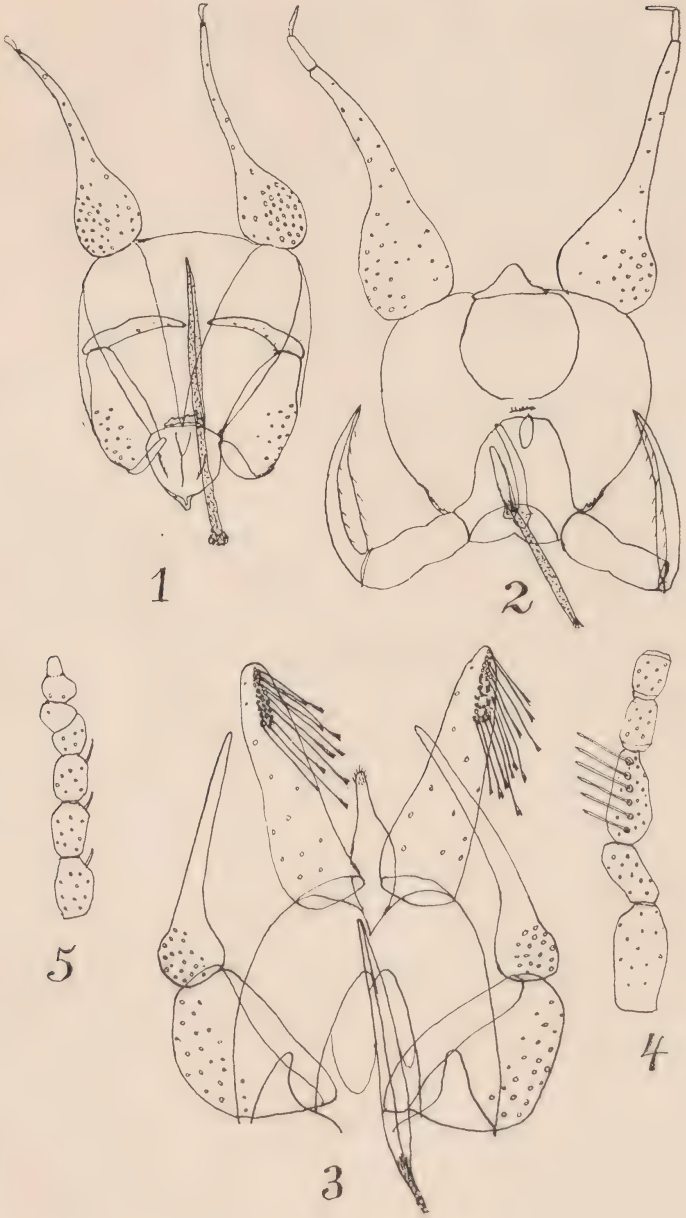
Pericoma fluviatilis, new species.

Femora and tibiae blackish with black hair; all the tarsi dull yellowish white, involving slightly the apices of tibiae. Vestiture of thorax and abdomen of deep brown hair, the integument black. Wings clothed with black hairs only, but across the disk in two bands they are thin, giving the appearance of two pale bands, separated by a deep black band of two spots, not reaching either costa or inner margin; apically the black hairs are denser, though not forming points on the veins or elsewhere. Fringe black.

The male hypopygium is represented in Plate I, Figure 3. Antennae of male 17-jointed, irregular; third joint large with a straight row of seven or eight large spines; terminal joint small. Antennae of female 17-jointed, the joints barrel-shaped, joints 14-15 and 16-17 united respectively, the terminal joint small.

Type, female, No. 29374, U. S. Nat. Mus.; North Fork Ranger Station, Glacier National Park, Montana, flying on herbage along the margin of the Flathead River at a point where spring water was seeping out into the mud, July 31, 1926. Also thirty-four other specimens taken at the same place on July 27 and 31 (H. G. Dyar), one male and one female of which have been deposited in the Canadian National Collection.

Close to *alberta* Curran, but in that species the tarsi are wholly dark.



EXPLANATION OF PLATE I

Fig. 1. Male hypopygium of *Psychoda phalaenoides* Linn.

Fig. 2. Male hypopygium of *Psychoda alternata* Say.

Fig. 3. Male hypopygium of *Pericoma fluviatilis* Dyar, new species

Fig. 4. The same, base of male antenna.

Fig. 5. The same, tip of female antenna.

SOME APPARENTLY NEW AMERICAN PSYCHODIDS

(*Diptera, Psychodidae*)

By HARRISON G. DYAR

Pericoma littoralis, new species.

A small species, the legs conspicuously annulate with gray and white. Antennae thickened by dense whorls of hairs arising from the basal globular parts of the segments. Fore wing with light gray hairs, three darker gray patches along the costa. Fringe whitish with small gray spots at the ends of the veins. Across the center of the wing a not very distinct band of gray. Tibiae and tarsi whitish, the tibiae with a central and apical gray band, the tarsi white at base and gray at apex, the small terminal joints more gray than white.

Male hypopygium. Upper (sternal) appendages one-jointed, short, ovoid, setose, bearing on the lower face toward apex a group of about eight thick flattened pointed setae. Basal plate moderately broad dorsally, narrowed to a line ventrally, two conspicuous lacunae in the membrane. A prominent pointed cone between the appendages half as long as themselves. Lower (dorsal) appendages two jointed, setose, the basal joint thickly conical, the second about as long as it, narrowed, hollowed at tip and ending in a blunt point. Aedoeagus thickly conical, about as long as the lower appendages, bearing about the middle two curved rod-like appendages, which exceed the aedoeagus by over half its length.

Types, two males, No. 29388, U. S. Nat. Mus.; Pacific Grove, California, May 6, 1906 (Upper Beach) (J. M. Aldrich).

Pericoma aldrichana, new species.

A small dark-colored species, the wings of the single specimen denuded of scales. Antennae thickened by whorls of hair from the globular basal segments. Legs dark.

Male hypopygium. Upper appendages one-jointed, short, conical with truncate tip and a slight terminal point; within on outer half a group of about nine stout flat setae, the longest of them reaching the base of the joint. Basal plate fairly large

dorsally, reduced to a line ventrally, with two large conspicuous ovate lacunae. Lower appendages two-jointed, the basal joint short, stout, slightly conical, setose; outer joint long, tapering to a point, longer than basal joint, setose at extreme base. Aedoeagus short and broad, with an ovate opening before the narrow doubly pointed tip, from the sides of which arise two long curving slender rods which are longer than the aedoeagus itself.

Obviously allied to *littoralis,* but the shape of the outer joint of the lower appendages (to mention a conspicuous feature) is very different.

Type, male, No. 29389, U. S. Nat. Mus.; Anchorage, Alaska, June 15, 1921 (J. M. Aldrich).

Kinkaid's species *sitchana, variegata, truncata* and *furcata* are unknown to me in nature, but all are described from females except *sitchana,* of which no details are given. *Littoralis* and *aldrichana* here described will require further comparison with these four western forms when more data are at hand concerning them.

Psychoda dakotensis, new species.

A very small light gray species, the wings with several large terminal dots, suggesting *alternata* Say. Wing whitish with three faint large blotches on costa, the outermost of which faintly crosses the wing. Three large terminal dots between apex and tornus and one small one above apex. Antennae thickened by whorls of hair from the globular basal parts of the joints. Legs dusky, without marks.

Male hypopygium. Upper appendages conical at base, long, tapering, setose; a jointed appendage at tip one-third as long as the segment. Basal plate very long and wide, the lower appendages widely separated from the upper. Lower appendages two-jointed, the basal joint slender, not as long as the plate; outer joint slender, tapered, pointed, about as long as the basal segment. Aedoeagus slight, slender, wide at base, expanded at outer third, and with two flattened appendages that exceed the tip.

Types, two males, No. 29390, U. S. Nat. Mus.; Brookings, South Dakota (J. M. Aldrich).

Obviously allied to *alternata* Say, and apparently also to *opposita* Banks and *sigma* Kinkaid, although of these two I have no male.

Psychoda busckana, new species.

Aspect and markings of *incompleta* Knab. The wings are the same, but the tarsi have a broad central white annulation involving two joints, the base and tip being dark, while in *incompleta* the tarsi are dark with very narrow white rings at the bases of each joint.

Male hypopygium. Upper appendage nearly globular, densely setose, each bearing below a conical prominence from which radiate long fine hairs with bulbous tips, somewhat as in Tonnoir's figure of *Psychoda hirtella* Tonn. (Ann. Soc. Ent. Belg., lxii, 60, 1922), except that these hairs are longer and more delicate (I do not find any hairs from the wing membrane besides those from the veins as Tonnoir describes for his species). Basal plate rather broad, doubly excavate behind but without lacunae. Lower appendages with ovate basal joint, second joint curved and horn-like with a little denticle at the base, the whole structure as long as basal plate and upper appendages combined. Aedoeagus strongly developed, bulbous at base and arising from a larger bulb in the membrane, the stem curved, thrust through a plate-like collar with an apical point and two basally directed long prongs. The tip of the aedoeagus is trifid, one long and one shorter curved horn and a tooth-like prominence below the short horn.

Psychoda antennalis Williston (Trans. Ent. Soc. Lond., 1896, 283, 1896) from St. Vincent is apparently identical in markings; but it is possible that different forms inhabit the several West Indian islands, and therefore it is thought best to retain this apart until material from St. Vincent is at hand, since Williston gives no structural details of the hypopygium.

Type, male, No. 29391, U. S. Nat. Mus.; Martinique, July, 1905 (A. Busck).

Psychoda alfaroana, new species.

Coloration as in *busckana* and *antennalis*. The male hypopygium differs.

Male hypopygium. Essentially as in *busckana* except as to the aedoeagus. This structure has a pair of very large curved hooks at the base, similar in size and shape to the outer joints of the lower appendages; beyond these the stem is slender, terminating in a large curved apex of many consolidated laminate hooks, and a quadrate wing on each side.

Types, six specimens of both sexes, No. 29392, U. S. Nat. Mus.; Alajuela, Costa Rica, June and August, 1921, bred from water in bamboo joints (A. Alfaro).

Psychoda grabhamana, new species.

Wings with dense black hairs, the fringe white at apex, and a row of marginal white spots between the veins all around the wing, smaller at apex. These spots are intensified by being clear membrane surrounded by infuscated areas. Tibiae black; tarsi white, with small central black ring and the last two joints black, thus twice ringed with white.

Male hypopygium. Upper appendages slightly conical at base, long, tapering, setose; a broadly elliptical appendage from a tubercle at tip, a quarter as long as the joint. A terminal cone between the appendages. Basal plate round, somewhat broad, its ventral segment not reduced to a line, but a fairly broad setose sclerite. Lower appendages reduced; basal joint stout and quadrate, setose; outer joint slender, tapered, with setae only at the extreme base, the whole organ curved along the outer margin of the basal plate. Aedoeagus strongly developed; a basal broad tricarinate segment with truncate angled tip. The organ then passes a three-sided basket-shaped structure, becomes slender and terminates in a curved blade.

Types, six specimens of both sexes, No. 29393, U. S. Nat. Mus.; Kingston, Jamaica, August 7-11, 1903 (M. Grabham).

In spite of somewhat similar coloration, this species has no relation to *tricolor* Knab of Panama. The hypopygium is of entirely different form. I have mounted one of the types of *tricolor*.

Maruina nuda, new species.

Integument dark, but thorax with whitish hair; legs uniformly blackish brown. Wing very thinly scaled, perhaps partly denuded; basal part to the fold with whitish hair, the rest with thin blackish hair.

Male hypopygium. Upper appendages thin, membranous, rather broadly triangular, setose. Basal plate small, rounded quadrate. Lower appendages large and well developed, basal segment conical, strongly chitinized with a groove within; apical segment large, uniform, grooved within, setose, the apical hairs tending to be recurved. Aedoeagus a rather small rod, widening outwardly into a trilobed plate, with a broad thin supporting plate which has two wide rounded ventral arms.

Type, male, No. 29394, U. S. Nat. Mus.; Plummers Island, Maryland, June 23, 1907 (H. S. Barber).

Maruina nigra Banks, unknown to me, is said to have the wings evenly and thickly covered with long black hair, which does not apply to the form before me.

This species with *cirrata* Coq., and presumably *nigra* Banks, have the wings of normal shape, though lacking one vein, not pointed lanceolate as in *lanceolata* Kink., *unipunctata* Has. and *angustipennis* Will.

NOTES ON PANAMA MOSQUITOES

(*Diptera, Culicidae*)

By HARRISON G. DYAR

In no other place in tropical America has the mosquito fauna been as well observed as in Panama. The conditions promise the discovery of a complete general knowledge of all the species occurring in the region. Therefore it is important to fill up gaps from time to time as far as it can be done incidentally by the sanitary officers stationed there.

Sabethes cyaneus Fab.

Mr. J. B. Shropshire has sent me a female of this species bred from a tree-hole "near the pump station" at Empire, C. Z.,

February 11, 1926. Associated species were *Aëdes* (*Finlaya*) *terrens* Walk. and *Culex* (*Culex*) *declarator* D. & K. The *Sabethes* larva probably feeds on the others. No data on this point, and no larval material was received, as this would be beyond the capabilities of the colored assistants who do the collecting and breeding.

Aëdes (Howardina) septemstriatus D. & K.

Mr. Shropshire sent me some twenty specimens of this species which were bred from a tree-hole at the "Quartermaster's dump" at France Field, C. Z., February 20, 1926. Associated in small proportion was a *Haemagogus,* probably *lucifer* H., D. & K. Larvae were not preserved, but the hitherto missing male may be described.

Hypopygium. Side piece slender, conically tapered, three times as long as mesial width. At its base a small conical lobe (rudiment of the claspette), bearing fine setae on both aspects and a single stout seta at tip. Clasper slender and uniform, over half as long as the side piece, the claw sub-terminal, long, inserted. Tenth sternites stout, with single or obscurely triple recurved heavily chitinized point. Mesosome cylindrical, square ended, rather large but weakly chitinized. Tenth sternites a pair of lobes, separated mesially, each bearing about five setae, not much thickened.

The palpi of the male are long and slender, not quite reaching the tip of the long proboscis.

Dr. D. P. Curry also sent me a male of this species bred from a tree-hole in the jungle a mile and a half east of Fort Randolph, January 27, 1926. It was accompanied by a large culture of *Haemagogus lucifer* H., D. & K. Dr. Curry sent larvae and exuviae from this culture; but as far as I can be sure they are all those of *lucifer,* though one looks slightly different. Dr. Curry's breeding was made a month earlier than Mr. Shropshire's, though it reached me four months later.

Culex (Choeroporpa) curryi, new species.

A small black *Culex* without any white markings, indistinguishable from others in the group; wing scales rather broadly

ovate; scales on the occiput black. Palpi short in the female, exceeding the length of the proboscis in the male by the length of the last joint.

Male hypopygium. Side pieces over twice as long as wide, curved ventrally. Clasper constricted before the middle, the snout occupying the apical half, pilose minutely outwardly, the spine appendiculate. Outer lobe of side piece without leaf, as in *educator;* inner forked, the cleft not reaching base. Mesosomal plate with fan-shaped single tip, granular on the margin and a long spine about the middle of the stem. Tenth sternites slender, few-toothed. Ninth tergites ovate, small, with sparse setae. Recurved hooks spatulate.

Type: No. 29375, U. S. Nat. Mus.; male and female bred from larvae in a rock pool in a trickling stream in the dense jungle of the large Mojinga River swamp, west of the canal entrance, about five miles from Cristobal, Canal Zone, Panama, April 20, 1926 (D. P. Curry).

Nearest *educator,* but the mesosomal plate is single with rounded tip, not furcate with one arm denticulate.

Larva of usual *Choeroporpa* type, long straight air-tube with five pairs of tufts beyond the pecten; lateral comb of the eighth segment large. Head hairs single, the upper pair small.

Culex (Melanoconion) bifoliatus Dyar.

Dr. D. P. Curry collected larvae of this species from a hole in a "wild plum" tree growing on the west bank of the "East Diversion" in the Mindi pasture near Gatun, August 25, 1926. The larvae were mixed with those of *declarator* and *inflictus* and perhaps other species of *Culex,* but are recognizable by the very thin black air-tube, flared at the base, and the antennal tuft which is very near the tip.

Head rounded, not wider than long, the antennae straight, slender, uniform and blackish, only the apical sixth narrower and preceded by the large tuft, being much nearer the tip than in *conservator* D. & K. Upper head-hairs in four or five, lower single. Skin glabrous. Lateral comb of the eighth segment a large patch of spines. Air-tube flared at the base, long and

slender (as in *conservator*), with four well spaced simple setae. Pecten of 14 sharp teeth, more widely spaced outwardly. Long lateral abdominal hairs on segments 3-5 double. Dorsal anal hairs of the last segment two long ones on each side without tuft.

This runs in my key to the larvae of Panama (Ins. Ins. Mens., xiii, 160, 1925) to *latisquama* (dichotomy 17), from which it differs in a number of details, most noticeable being the more outwardly placed antennal tuft.

UNDESCRIBED SPECIES OF CRANE-FLIES FROM THE UNITED STATES AND CANADA, PART II

(*Diptera, Tipulidae*)

By CHARLES P. ALEXANDER

The new species of crane-flies described herewith were included in the extensive and interesting collections made by Professor J. Speed Rogers in Tennessee; by Mr. Raymond Shannon in Washington; and by Mr. Norman Criddle in Manitoba, the latter included in abundant lots of material submitted by Mr. Curran. I express my sincere thanks to the above mentioned entomologists for these kind favors. Except where noted otherwise, the types are preserved in the collection of the writer.

Elliptera tennessa, new species.

Size large (wing over 7 mm.); mesonotal praescutum with three confluent shiny brown stripes; wings with a faint brownish tinge; *r* present; basal section of R_{4+5} arcuated; cell $1stM_2$ closed; *m–cu* some distance before the fork of *M*.

Male: Length, about 5.5 mm.; wing, 8.3–8.5 mm.

Female: Length, about 5.5–6 mm.; wing, 7.5–8.5 mm.

Rostrum short, obscure yellow; basal segments of the palpi yellowish, the terminal segments dark brown. Antennae with the basal segments light brown, the flagellum dark brown; flagellar segments short-oval. Head grayish brown.

Pronotum testaceous brown. Mesonotal praescutum ochreous yellow, with three conspicuous shiny brown confluent stripes, the

median stripe paling into reddish brown behind; scutal lobes shiny brown, median area pale; scutellum and postnotum pale testaceous brown, the latter passing into yellow laterally. Pleura reddish yellow. Halteres dark brown, the base of the stem broadly pale. Legs with the coxae and trochanters reddish yellow, the fore coxae a trifle darkened at base; remainder of legs brown, the femoral bases somewhat paler. Wings with a faint brown tinge, the veins darker brown. Macrotrichiae on all the longitudinal veins beyond the cord except the base of R_{2+3} and basal half of the first section of R_{4+5}; trichiae on *Sc* and R_1 beyond the origin of *Rs;* on the distal fifth of the first section of *M;* a scattered series along the whole length of vein *2nd A*. Venation: *Sc* long, Sc_1 extending to about opposite two-thirds the length of the long *Rs*, Sc_2 shortly before origin of *Rs; r* present but weak, opposite or before *r-m;* basal section of R_{4+5} strongly arcuated; cell *1st* M_2 closed; *m-cu* variable in position, in cases more than its own length before the fork of *M*, in still other cases only about one-half its length.

Abdominal tergites brown, the sternites pale, obscure yellow, especially the basal segments; hypopygium brownish yellow.

Habitat: Tennessee.

Holotype, ♂, Allardt, Buffalo-Cove, Fentress Co., altitude 1,300 feet, June 11, 1924 (J. S. Rogers); Coll. No. 15.

Allotopotype, ♀.

Paratopotypes, 6 ♂♀, altitude 1,100–1,300 feet.

Type in the collection of the Museum of Zoology, University of Michigan, through Professor Rogers.

Elliptera tennessa differs from *E. illini* Alexander in the much larger size and distinct venation, especially the arcuated basal section of R_{4+5}, the normally closed cell *1st* M_2 and other details. In this species, the apparent radial crossvein is constantly retained.

Molophilus auricomus, new species.

General coloration reddish yellow; antennae short in both sexes; male hypopygium with the outer dististyle narrowed into a long acute point.

Male: Length, about 3 mm.; wing, 4 mm.

Female: Length, about 3.5 mm.; wing, 4.3 mm.

Rostrum and palpi dark. Antennae short in both sexes, in the male about reaching the wing-root; basal segments pale yellowish, the terminal segments infuscated. Head yellow.

Pronotum sulphur-yellow, more reddish laterally. Lateral pretergites conspicuously light sulphur-yellow. Mesonotum reddish yellow, the lateral margins of the praescutum yellowish. Pleura reddish yellow. Halteres pale, the knobs light yellow. Legs with the coxae and trochanters pale testaceous yellow; fore legs dark brown, the femora paler basally; middle and hind legs more yellowish, the terminal tarsal segments darkened. Wings yellow, the costal region brighter yellow, the anal margin a little darkened; veins pale yellow, *C, Sc, R* and Cu_1 more conspicuously so; macrotrichiae pale brown, in the costal region light yellow. Venation: *m-cu* at near one-third the length of M_{3+4}; vein *2nd A* elongate, ending opposite or beyond midlength of the petiole of cell M_3.

Abdomen reddish yellow, the tergites with a narrow interrupted median brown vitta; hypopygium concolorous, the dististyles conspicuously blackened. Male hypopygium with the ventral portions of the basistyle produced caudad into flattened triangular lobes; dorsal angle of basistyle further produced into a slender rod that is about one-half as long as the dististyle, acutely pointed at apex, the surface with a few scattered very elongate setae. The two dististyles occupy the notch of the basistyle, are generally similar to one another in shape, very long and extruded, the tips actutely pointed and blackened. Outer dististyle broadest near midlength, thence narrowed to the long acute point, the lateral margin near midlength with very weak serrulations. Inner dististyle widest at the basal third, the distal two-thirds blackened, slender, sinuous, the outer margin near two-thirds the length with small serrulations. Aedeagus long and slender, straight, longer than the dististyles.

Habitat: Tennessee.

Holotype, ♂, Allardt, Buffalo-Cove, Fentress Co., altitude 1,400 feet, June 28, 1924 (J. S. Rogers); Coll. No. 61.

Allotopotype, ♀, Allardt, Crooked Creek, altitude 1,550 feet, June 14, 1924 (J. S. Rogers); Coll. No. 30.

Paratopotypes, ♂ ♀, June 14-28, 1924.

Type returned to Professor Rogers.

Molophilus auricomus is strikingly similar to the species that we have been calling *M. pubipennis* (Osten Sacken) but the antennae are short and the male hypopygium is very distinct in structure. There is a possibility that the present species is the true *pubipennis*, the types of which consist of females only.

Gonomyia (Ptilostena) apicispina, new species

Male: Length, about 4 mm.; wing, 5.2 mm.

Female: Length, about 5.8 mm.; wing, 6.3 mm.

Closely allied to *G.* (*P.*) *mathesoni* Alexander, differing especially in the structure of the male hypopygium.

Rostrum and palpi infuscated. Basal antennal segments light yellow, the terminal segments passing into brown. Head yellow.

Pronotum yellow, brighter medially. Mesonotum reddish brown, the praescutum with a very sparse pruinosity, the lateral margins more yellowish; scutal lobes somewhat darker than the median area, the posterior calli yellow. Pleura reddish brown, the dorsal region somewhat darker; a more or less distinct yellowish longitudinal stripe that includes the dorsal portions of the sternopleurite and the meron. Halteres infuscated. Legs with the coxae and trochanters yellowish testaceous; femora yellow; tibiae yellow, the tips narrowly infuscated; tarsi dark brown, the proximal portions of the basitarsi a little paler. Wings with a faint yellowish brown tinge, the costal region brighter yellow; veins pale brownish yellow, those in the costal region brighter. Venation: Veins R_1 and R_2 rather closely approximated at margin; R_{2+3} gently arcuated.

Abdominal tergites brown, the caudal margins of the segments narrowly yellowish; sternites more uniformly yellow. Male hypopygium with the apical lateral lobe of the basistyle relatively stout. Outer needle-like dististyle very slender, the apical third darkened. Middle dististyle with the inner arm expanded into a paddle-like darkened blade that is fully one-half

the length of the outer arm, the latter moderately slender, ending in a slightly decurved acute spine. Inner dististyle a small pale rod, the apex with a conspicuous black spine. Aedeagus entirely pale, the tip bent laterad into a simple blade-like beak.

Habitat: Indiana.

Holotype, ♂, Hensler's Woods, near Hanover, June 16, 1921 (C. P. Alexander).

Allotopotype, ♀.

Paratopotypes, 2 ♂♂.

Gonomyia (Ptilostena) shannoni, new species.

Closely related to *G. (P.) californica* Alexander, differing especially in the structure of the male hypopygium.

Male: Length, 6 mm.; wing, 7 mm.

Rostrum and palpi dark brown. Antennae with the basal segments pale brown, the outer flagellar segments passing into dark brown; flagellar segments elongate-oval. Head light yellow, the center of the vertex with a large dark brown spot.

Pronotum dark brown, the lateral margin narrowly light sulphur-yellow. Lateral pretergites narrowly light sulphur-yellow. Mesonotal praescutum dark gray with two narrow dark brown lines that cross the suture and include the inner margins of the scutal lobes; humeral region with a yellow triangle; lateral margin of praescutum behind the pseudosutural foveae obscure yellow; scutal lobes gray, the median area buffy gray; scutellum obscure buffy with a brown spot on either side; postnotal mediotergite dark gray, each antero-lateral angle with a yellow spot. Pleura dark brown, sparsely pruinose, the dorsopleural membrane sulphur-yellow; a broad pale yellow stripe extending from behind the fore coxae to above the posterior coxae. Halteres yellow, the knobs dark brown. Legs with the coxae fulvous-yellow, their bases narrowly infuscated; trochanters orange-yellow; femora yellow, the tips conspicuously darkened; tibiae obscure yellow, the tips narrowly darkened; basitarsi obscure yellow, their tips and the remainder of the tarsi dark brown. Wings whitish subhyaline, the base and costal region pale yellow; a sparse dark brown pattern, including seams

at *h;* arculus; origin of *Rs;* end of *Sc;* along the cord; at *m;* a small cloud at fork of R_{2+3}, in contact with the stigma; wing-apex dark, more extensive in the apex of cell R_2; veins dark brown, more flavous in the yellow areas. Venation: *Sc* long, Sc_1 ending beyond midlength of *Rs*, Sc_2 at its extreme tip; *Rs* angulated and short-spurred at origin; veins R_1 and R_2 closely approximated at margin, the space separating them being about one-half Sc_2; veins R_2 and R_3 at tips showing a tendency to turn cephalad.

Abdominal tergites dark brown, the caudal margins of the intermediate segments conspicuously ringed with yellow, these areas becoming more extensive outwardly, the terminal segments and hypopygium more uniformly darkened; sternites obscure brownish yellow, the sides marked with brown. Male hypopygium with the dististyle a very massive, heavily blackened, compact structure, the inner cephalic angle produced into a long powerful spine that is directed caudad; inner caudal angle produced mesad into an expanded truncated blade or club; mesal edge of style between these two prolongations extensive, provided with a broad tooth; surface of style with abundant setulae.

Habitat: Washington.

Holotype, ♂, Wawawai, July 8, 1920 (R. C. Shannon).

I am indebted to the kindness of my friend, Mr. Shannon, for this specimen.

Limnophila (Phylidorea) tepida, new species.

General coloration dark brown; fore femora dark brown, the basal fifth yellow; wings with a uniform pale yellow tinge, the oval stigma darker; abdomen fulvous-yellow, the eighth segment narrowly dark brown to produce a narrow subterminal ring; male hypopygium with the aedeagus and subtended gonapophyses very long and filiform; the shorter apophyses shallowly bifid at apices.

Male: Length, about 9.5 mm.; wing, 10.5 mm.

Rostrum and palpi dark brown. Antennae with the basal segment dark brown, the following segments brownish yellow, the terminal segments darker. Head dark, gray pruinose.

Pronotum and mesonotum dark brown, sparsely pruinose, the posterior margins of the scutal lobes obscure yellow; scutellum paler, the surface pruinose. Pleura dark, heavily gray pruinose, the postnotal pleurotergite pale. Halteres pale, the knobs weakly infuscated. Legs with the coxae and trochanters obscure yellow, the fore coxae a little infuscated; only a single (fore) leg remains, this dark brown with about the basal fifth of the femora yellow; tibiae and tarsi a little paler than the femora. Wings with a pale yellow tinge, the stigma oval, brown; wing-membrane otherwise unmarked; veins brown, more yellowish in the costal region. Venation: Sc_1 ending opposite the fork of M, Sc_2 longer, at the tip of Sc_1; r just before midlength of R_2; cell M_1 longer than its petiole; cell *1st* M_2 relatively small, rectangular; *m-cu* at near one-third the length of the cell; vein *2nd A* relatively long and sinuous.

Abdomen fulvous-yellow, the eighth segment narrowly dark brown; hypopygium yellow. Male hypopygium with the basistyles short and stout; outer dististyle entirely pale, the apex suddenly narrowed into a long slender point; inner style shorter. Aedeagus and the subtending pair of gonapophyses long and filiform, as in the *adusta* group, the shorter pair of apophyses slender, heavily chitinized, the apex of each shallowly bifid.

Habitat: Colorado.

Holotype, ♂, without further data.

Tipula perparvula, new species.

Belongs to the *marmorata* group; size very small (wing, ♂, under 10 mm.); femora yellow, the tips narrowly blackened; male hypopygium with the outer dististyle narrow, tapering gradually to the subacute apex.

Male: Length, 7.8-8 mm.; wing, 9.3 mm.

Frontal prolongation of the head brownish black, the nasus relatively stout; palpi brownish black. Antennae (♂) relatively short, if bent backward about attaining the wing-root; scape light yellow, the flagellum dark brown, the extreme base of the first segment paler; flagellar segments only slightly incised. Head gray, the posterior vertex and occiput strongly infumed, the posterior orbits remaining clear gray.

Mesonotal praescutum gray, with three conspicuous dark brown stripes, the median stripe broad, narrowed posteriorly and barely reaching the suture; lateral stripes narrow, relatively short, pseudosutural foveae very small; in the paratype, the median stripe is narrowly split by a capillary vitta of the ground-color, the cephalic ends of the intermediate stripes thus formed being invaded by gray triangles, as in *T. ignobilis* Loew; scutal lobes extensively dark brown; scutellum a little paler than the scutum, dark brownish testaceous; postnotum dark, sparsely pruinose. Pleura clear gray, indistinctly variegated with darker, especially ventrally. Halteres yellow, the knobs dark brown. Legs with the coxae light gray, indistinctly variegated with darker; trochanters obscure yellow; femora yellow, the tips narrowly and conspicuously blackened; tibiae brown, the tips passing into brownish black; tarsi brownish black. Wings with a grayish tinge, the stigma and outer halves of cells *C* and *Sc* darker; inconspicuous whitish hyaline spots, arranged as follows: Before the stigma in cells *C* and *1st* R_1; beyond the stigma in cells R_2 and R_3; an obliterative area crossing the cord and including parts of cells R_1, *1st* M_2 and M_3; a circular spot beyond midlength of cell *M*; bases of cells *R*, *M*, *Cu*, the Anal cells and the prearcular region pale; veins dark brown. Venation: *Rs* short and straight; M_{3+4} very short, about one-half longer than the basal section of M_4 alone.

Abdominal tergites with the basal segment dark brown; the succeeding segments obscure yellow, the tergites with a dark spot on either side of the median line at base, the color continued slightly caudad to form broken sublateral stripes; on the sixth and remaining segments, the dark color increases in amount to include the whole tergite; lateral and caudal margins of the intermediate tergites narrowly pale; basal sternites yellow, the outer segments black, with the caudal margins narrowly but conspicuously yellow. Male hypopygium small and inconspicuous. Ninth tergite with a very shallow V-shaped notch. Outer dististyle pale, narrow, tapering gradually to the subacute tips. Eighth sternite unarmed.

Habitat: Manitoba.

Holotype, ♂, Aweme, June 29, 1924 (N. Criddle).
Paratopotype, ♂.
Type in the Canadian National Collection.

TWO NEW SIPHONAPTERA FROM NEW YORK

By M. A. STEWART

While studying the New York fleas in the Cornell University collection of Siphonaptera the writer discovered the two new species described in this paper. The types are deposited in the Cornell museum.

Trichopsylla lotoris, new species.

Male and Female. Head.—The rostrum consists of five segments and reaches nearly to the apex of the fore coxa; the maxillary palpi reach less than half the length of the fore coxa. The frons is broadly rounded and bears a very inconspicuous frontal tubercle. The lower genal row is represented by four very long heavy bristles just anterior to the indistinct eye, and the upper row is represented by three shorter bristles anterior to the second antennal segment. There are two occipital rows of three bristles each, close to the antennal groove. The apical bristles of the second antennal segment are stout and some of them extend beyond the club.

Thorax.—The pronotum bears an apical row of about sixteen bristles. The ctenidium is absent. Both the meso- and metanotum bear two rows of bristles; the apical row of the mesonotum consists of about ten bristles and that of the metanotum of about eight. The apical area of the metanotum is very considerably reduced. On the posterior margin of the metepimerum is a row of seven long, heavy bristles, dorsally anterior to which are two shorter ones.

Abdomen.—there are two rows of bristles on the second to seventh abdominal tergites, the posterior of which extends below the stigmata. The third to seventh sternites bear two rows of bristles each; in the female the anterior rows are represented by two bristles each and the apical rows are as follows:

10, 8, 9, 8, 6 on each side. On the first six sternites the more ventral of these bristles are very long and heavy, and on the seventh all but the upper are long and heavy. There are no antepygidial bristles present.

Legs.—The hind coxa is heavily bristled on the inner side. The hind femur bears a row of about eighteen bristles on its outer surface. The tibiae bear a lateral row of about eight stout bristles and five pairs of stout dorsal bristles. The longest apical bristle of the hind tibia does not reach the apex of the first tarsal segment. The lateral bristles of the hind tarsal segments are stout and are paired on the first segment. The dorsal apical bristle of the first tarsal segment reaches the apex of the second segment. There are four pairs of rather long lateral plantar bristles on each of the last tarsal segments. On the fore tarsi the third pair of these bristles is slightly dislocated toward the median line.

Modified segments. Male.—The eighth sternite is long with an obtuse apex, anterior to which is a row of about four bristles on each side. The clasper is very broad and somewhat oval in shape, with the bottom flattened. There is a row of about twenty-one long bristles, some of which at least are double, on the posterior margin of the clasper. The upper anterior margin bears about twelve bristles, posterior to which are about six spinelets. There are also about eleven bristles on the disc. The manubrium is short, directed ventrally, and rapidly tapers towards its anterior end. The finger is long, heavily chitinized, slightly curved upwards, and gradually narrows towards its apex. This structure is very conspicuous and arises near the center of the disc. The ninth sternite is long and stout, being somewhat narrowed in the middle, with the apex suddenly narrowed and produced into a downward curving lobe. The arm of this sternite is enlarged anteriorly.—Female. The seventh sternite is slightly shortened with a deep sinus at the posterior margin; the apex is subacute. The eighth sternite is sharply curved upward posteriorly; the apex is acute and there is an indentation above, giving it a rather bilobed appearance. There are about seven bristles on the margin of this sternite and about

seven more placed anteriorly. The eighth tergite is characterized by about twenty spinelets on the posterior portion of the segment. The receptaculum seminis of the type female is unfortunately rather badly distorted but the accompanying figure will give some idea of its general appearance.

Camera lucida drawing of the receptaculum seminis of *Trichopsylla lotoris*.

Length: Male, 1.72 mm.; female, 3.20 mm.

Type-locality.—Olcott, New York.

This species is described from a racoon, *Procyon lotor*, taken at Olcott, New York, November 16, 1921.

Neopsylla striata, new species.

Male. Head.—The rostrum is broad, five segmented, and reaches about three-fourths the length of the fore coxa. The maxillary palpi reach to the apex of the fourth segment of the rostrum. The frons is broadly rounded and bears a very conspicuous frontal notch. There are two rows of long, heavy bristles on the frons, the upper of which consists of six bristles and the lower of three. The oral bristle reaches nearly to the apex of the maxilla. The gena is truncate below the eye. The occiput bears three rows of stout bristles; the upper row consists of four bristles, the middle of four, and the lower of four bristles and four hairs. Above the upper occipital and genal rows of bristles and back of the antennal groove are numerous minute spines. The eye is vestigial and the genal ctenidium consists of two stout spines, which cross one another, on each side. The bristles of the second antennal segment are short.

Thorax.—The pronotum bears two rows of bristles; the posterior one consisting of about twelve long, stout bristles and the anterior one of about six small bristles, and a ctenidium of about twenty long, stout spines. The mesonotum is nearly twice as long as the metanotum, viewed from the side, and possesses a posterior row of about eight long, heavy bristles, anterior to which is a row of about ten small bristles and an irregular patch of numerous smaller ones. The metanotum bears an apical row of about twelve long, heavy bristles, a middle row of about fourteen smaller ones, and an irregular anterior row of about twenty bristles. The metepimerum bears four bristles on the lower part of the posterior margin and one on the upper part, and an anterior row of five bristles. All of these bristles are long and heavy.

Abdomen.—The apical bristles of the abdomen are very long and heavy and the rows extend below the stigmata. The second to seventh abdominal tergites each bear two full rows and one incomplete row of bristles. The apical row consists of about eighteen bristles and the row just anterior consists of about twenty smaller ones. The second tergite has two small dorsal teeth on each side, the third three, the fourth and fifth two, and the sixth one. The third to seventh abdominal sternites bear two rows of bristles, the posterior one of which is long and heavy, and an anterior triangular patch of small bristles; the rows are arranged on each side as follows: 4-5, 3-6, 3-7, 3-8, and 4-6. There are three long, stout antepygidial bristles, the middle one of which is the longest and the dorsal the shortest, on each side. There are six bristles below the pygidium.

Legs.—There are no spinelets on the inner side of the hind coxa but there is a patch of about thirteen bristles on the inner side of the anterior distal region. There are two lateral bristles anterior to the dorsal distal margin and two ventral bristles distally on the hind femur. There are ten lateral bristles, all but one of which are in a straight line, and eight pairs of dorsal bristles on the hind tibia. The mid tibia has two bristles in front of the lateral row. The longest apical bristle of the hind tibia extends about two-thirds the length of the first tarsal seg-

ment. The first hind tarsal segment is as long as the second and third segments together. All of the lateral bristles of the hind tarsus are very heavy. There are four pairs of lateral plantar bristles on the fifth hind tarsal segment. The last tarsal segments of the fore and mid tarsi bear five pairs of lateral planter bristles.

Modified segments.—The eighth sternite bears about twenty-nine long, slender bristles which form a kind of brush. The ninth sternite is long, slightly dilated toward the tip, and is truncate at the apex. On the ventral margin of the ninth sternite there are between forty-five and fifty long, narrow bristles forming a brush; just dorsal to it a close set row of spinelets. The non-movable process of the clasper is bilobed; the upper lobe is much smaller than the lower, triangular in shape, and possesses about twenty-two bristles, of which eleven are very long and slender, on each side. The lower lobe is broadly rounded at the apex, about as broad at the apex as at the base, slightly curved posteriorly, and more than twice as long as broad. Near the apex are five long bristles. In addition to these there are about twenty-four thin bristles on the ventral margin. There is a thick row of small bristles on the posterior margin of the lower lobe. The expodite of the clasper reaches the apex of the lower lobe of the non-movable process of the claspers. It is broadly dilated proximally and has an acute apex. The dorsal margin is oblique and without sinuses. There is one long hair near the distal end and along the ventral margin are smaller hairs. The manubrium is long and slender and is pointed obliquely anterior with the proximal end upturned. The tenth tergite is exceedingly hairy.

Length: Male, 4.25 mm.

Type-locality.—Ithaca, New York.

This species is described from one male taken from the nest of a chipmunk, *Tamias striatus*, by Dr. P. P. Babiy at Ithaca, New York.

NOTES AND DESCRIPTIONS OF AUSTRALIAN CHALCID-FLIES—V

By A. A. GIRAULT

Tetracampe aligherini, new species.

As *australiensis* but transverse petiole metallic, also scape, legs (save tibia 1—dusky before apex—knees widely, tibial tips 2-3 and 1 of tarsi 2-3, these white). Pedicel smaller than funicle 1, latter twice longer than wide, 6 quadrate. Hind tibial spur rather stout. Parapsidal furrows not quite complete, rather deep. Marginal not quite twice postmarginal, latter over twice stigmal which has rather long neck. Scutellum plane, glabrous; abdomen 2 equal 3, 1/6 surface. Discal cilia of fore wing to base; submarginal setae many, very slender. Tarsi 5-jointed. Jaws acutely bidentate, teeth small, 2 a bit longer. Petiole much smaller than coxa 3.

Kingston, forest, January 21, 1923.

Exoclaenoides Girault.

This is no doubt *Exoclaenus* Shipp. The caudal tibial spurs are *double,* coxa 3 bears a columnar tooth dorsad distad of middle while the male bears a large horn at base meson of propodeum. In the original description the femur 3 is said to bear the dorsal tooth—a blunder.

Nearretocera longipedicel, new species.

In my revised table to *rubricornis* Dodd but only scape, pedicel red, leg 1-2 save coxae red, wings subfuscous; knees, apex and distal one-third above, tibia 3, red; pedicel elongate, equal club, twice funicle 1, latter twice longer than wide, shorter than 2-4, 8 equal 1. Abdomens 2-3 equal, united 2/3 surface. Propodeum with 4 rugae on each side, 2 crenulate, 4 at lateral margin. Tegulae reddish at base. Clothing of dorsal surface very short, sparse.

Beenleigh, December 29, 1922.

Pseudiglyphomyiia atripropodeum, new species.

Golden, wings clear, black-green as follows: Dot on lower face, mesad from end of eye; a mark from end of lateral

ocellus, ocellar area, scape dorsad, pedicel above, wide stripe across middle of occiput; venter and face of prothorax; venter of thorax, pleura of same (save upper ½ pro- and meso-), cephalic ¼ scutum, median line of scutum and scutellum; propodeum; dorsal thoracic sutures; spot on axilla; abdomen save upper half laterad, 2 marginal spots centre and apex of 2 and a wide stripe across just before apex. Jaws 5-dentate. Spicule of club large. Funicle 1 twice longer than wide. Propodeum at meson equal postscutellum. Dorsal thoracic clothing long, sparse.

Forest, Kingston, January 7, 1923.

Anusoidea, new genus (Ectromini).

As *Epanusia* but club bell-shaped, stigmal oblique, slender, equal marginal, postmarginal barely developed. Submarginal not thick proximad. Frons narrow; ocelli not central, lateral at eye, distincty closer to each other than either is to median.

Anusoidea aureiscutellum, new species.

Purple; scutellum, head, axillae, prothorax save neck, orange; coxae silvery (3 purplish), also prepectus and mesopleurum; legs 1 save coxa, nearly distal ½ tibia 2, tarsi, distal ¼ tibia 3, yellow. Scutum with weak whitish pubescence. Fore wing with a deep cross-stripe from bend of submarginal to apex stigmal, its distal margin highly convex, followed by a narrow, bowed, hyaline cross-stripe, thence to apex, dusky. Flagellum elliptical-ovate, pedicel minute, scape a fourth longer than wide, funicle 1 largest, twice wider than long, 6 smallest. Discal cilia faint in clear cross-stripe, very dense in deep infuscation, proximad of hairless line 5 to 6 ¾-complete lines and one along submarginal (in which distad, 1 or 2 somewhat flattened setae). Costal cell one line of discal cilia, doubled distad.

Kuranda, A. P. Dodd.

Tetrastichus angeloni, new species.

Black, wings clear, veins pale, scape, legs, abdomen, postscutellum golden, abdomen black; lateral and basal margins narrowly, apex more widely, 5 cross-stripes equally distributed, base

to apex; a dusky midlongitudinal line, base to stripe 4, forming four round yellow spots in a line between meson and lateral margin on each side, the first two pairs more or less suffused (8 spots altogether). A line of punctures along lateral margin of scutum. Lateral ocelli closer to median than to eye. Funicles exceeding pedicel, 1 twice longer than wide; club with a terminal nipple. Stigmal straight, moderate in length. Resembles *Neotetrastichodes electra* Girault. Nelson.

Diglyphomorphella aeneiscapus, new species.

Aeneus, wings with a central rectangular stain, its distal end with an acute arm to stigmal, knob, its proximal end opposite proximal third of marginal, the axis oblique; legs save tarsal 4, coxae 2-3, basal half of coxa 1, straw yellow. Funicle 1 two and a fourth times longer than wide, two a half longer than wide, 3-4 quadrate, pedicel smaller than either. Club with distinct spicule, basal joint half or more. Jaws 8-dentate (one side). Antennae below middle of face, barely above eye ends. Lateral ocelli about their diameter from median and not much more from eye. Scaly punctate. Vertex with scattered strong bristles, finer and colorless on cheeks. Grooves of scutellum a bit convergent toward apex, there widely separated. Propodeum with a strong median (composed of 2) corina and a spiracular sulcus half complete from caudad and cross-striate. Abdomen sessile, 2 not long. Scutum, scutellum with four pale setae. Costal cell with several lines discal cilia, the latter ending just before base of marginal but two curved parallel lines, caudad of middle meet two shorter, less parallel and more separated lines from break of submarginal.

Hobart, Tasmania, G. H. Hardy, August 12, 1916.

Coccidoxenus brevicornis, new species.

Green, scutellum blue, legs bright golden except last pair (except tarsi and apex of tibia), tibia 2 somewhat sordid, veins fuscous, wings with a dusky cross-stripe, from stigmal and marginal this subovate and not deep. Frons moderately wide. Characterized by the short flagellum, the conic-ovate club nearly as long as funicle, much wider, funicles 1-4 equal, half wider

than long, 5 twice wider than long, 6 somewhat larger than 5, pedicel equal to 1, 2 and 3 united. Scape simple, equal to funicle. Antennae suffused with brownish. Postmarginal nearly as long as stigmal. Hairless line with four lines of cilia proximad of it, 1 and 2 somewhat separated from 3 and 4, also a line along submarginal whose cilia are about half the size of the submarginal setae. A line of cilia closes mouth of hairless line near caudal margin. Hind wings with fifteen lines of discal cilia. Ovipositor shortly extruded. Sculpture fine. Jaw 1 shorter than 2. Palpi pale.

Jungle, October 3, 1921, Cedar Creek, Q.

Parachalcerinys coccidoxenoides, new genus and species.

Like a small light green species of *Coccidoxenus* with moderately wide frons. Characterized by the rather short subacute jaw teeth, 2 a bit longest and the subequal postmarginal and stigmal veins, marginal punctiform. Green and finely, densely sculptured. Legs except coxae and femur 3 save apex, pale, also antennae. Club dark, wings clear, veins dark. Funicles 1-3 a half wider than long, combined subequal pedicel, 4-5 nearly twice larger, 6 subquadrate, largest; club conical, equal to funicle and the body of the scape, latter a bit compressed. Postmarginal with a small terminal bristle, hairless line three-fourths the way down closed by 2-3 lines discal cilia, proximad of hairless line, cilia extending about two thirds the way to base; submarginal setae moderately small.

One female, forest, Wynnum, November 25, 1921.

Aprostocetus handeli, new species.

Imperial purple, coxae and a little over proximal half of femora 1 and 2 concolorous, the ample wings clear. Scape pale yellow. Venter, sides (except along dorsal edge), a round spot base above, at meson (base to apex segment 2) and distal margin of last two segments, orange; apex ovipositor valves black. Impunctate, except lightly along lateral margin of scutum (the median groove present only near apex). Legs orange. Funicles and clubs 1-2 subequal, nearly twice longer than wide, subequal pedicel. Scape compressed, hairs of funicle

longish, spicule of club long, half of club 3. Ocelli nearly in a straight line, lateral. Mandible 2 widely truncate (apparently). Propodeum with a short median carina only.

One female from mixed forest galls, Wynnum, August 21, 1921 (E. A. Girault).

Psilogaster partiglabra, new species.

Like genotype but head save for scattered pin-punctures, caudal two-thirds parapsides and axillae glabrous, scutum and cephalic parapside transversely striate, scutellum and propodeum foveolate, petiole finely aciculate. Femora metallic, abdomen dark red except at base and apex widely above. Scutellum from lateral aspect as in *Epimetagea*. Propodeum with an obscure median ruga and a lateral groove. Petiole half longer than hind coxa. Scrobicular cavity deep, ocelli in a straight line. Scutellum sans cross-groove. Funicle 1 a bit shorter than scape, elongate, slightly swollen at apex, 2-3 capitate, equal shorter rest globular, the peduncle gradually disappearing; club ovate, next longest after funicle 1, simple.

One female, forest, Brisbane, H. Hacker, April 20, 1913.

Eurytoma tasmaniensis, new species.

As *secunda* but propodeum without a median channel, finely rugulose and with only an obscure median depression; marginal twice stigmal which is a bit shorter than postmarginal; petiole over twice longer than wide, abdomen 3 transverse, 5 equal (dorsad) 2-4 united, all polished, rest hairy. Lateral ocellus somewhat closer to median than to eye. Dorsal thorax and vertex hispid. Mesopleurum with a punctulate cephalic part and a cross-lined caudal, no intermediate glabrous portion.

Hobart, Tasmania, G. H. Hardy, April 21, 1917.

Stomatoceras atritegula, new species.

Black, red as follows: Coxae save cephalo-lateral aspect of ♀, femora save all lateral aspect of ♂ save proximal fourth and knee, tibiae save above at base rather widely. Middle meson of venter, base of scape and of funicle 2, obscurely reddish. Fore wing with the usual loop from marginal vein and accen-

tuation under that vein. Apex scutellum bidentate, the teeth short. Lateral ocellus distinctly closer to eye than to cephalic. Pedicel a bit exceeding funicle 2.

One female, Ocean Grove, Victoria, H. W. Davey.

Habrocytus brittanicus, new species.

Characterized by bearing in the fore wing centrally a triangular smoky area with its base proximad, opposite marginal and stigmal veins. Legs and scape yellow brown, tips of tibiae widely and tarsi white. Hind coxae submetallic. Funicle 1 a half longer than wide, subequal pedicel. Clypeus striate, sinuate at meson. Propodeum with lateral carinae, a short neck, spiracle elliptical, small, its sulcus bifoveate. Antennae a bit below middle of face. Marginal a bit longer than postmarginal, latter a bit longer than the long stigmal. Abdomen conic-ovate, longer than thorax, segment 2 entire.

One female, forest, Vancouver, British Columbia, October 2, 1917.

Tetrastichus punctatifacies, new species.

Dark green, wings clear, legs and antennae concolorous except tarsi, tibial tips and bases, which are reddish, venation brown. Thorax coarsely reticulate scaly, a row of faint punctures down lateral margin scutum; head pin-punctate, the lateral ocelli about equidistant between eye and cephalic, ocelli in a curved line. Funicle 1 twice longer than wide, 3 barely longer than wide, subequal pedicel; club short, with distinct spicule, club 3 hemispherical, shortest. Mandibles 2 to 3 short, equal, paired, 1 acute, stronger. Stigmal subelongate, the fore wing very wide. Propodeum with median and lateral carinae, spiracles between latter and carinated lateral margins. Scutum naked in disk, a line of black setae, rather long, across pronotum. Robust, abdomen conic-ovate.

Ipswich, forest.

Coccidoxenus perdubius, new species.

Like description of *penni* but ovipositor not extruded, legs and antennae concolorous and the pedicel much exceeds any

funicle. Also as *inconspicuus* in detail but flagellum concolorous, funicle 1 is smallest, subquadrate, rest wider than long, 6 largest, third wider than long, 2 a bit longer than 1, scape all concolorous and discal cilia proximad of hairless line fine and extending to base (ten or more lines, no coarser than the rest of the ciliation). Lateral ocellus near eye, frons moderately wide, scrobes well developed, mandible 2 squarely truncate.

Wynnum, forest.

Tibia 2 blue for at least basal third. Thorax convex, pilose. Forest, a female, Cannon Hill, July.

Coccophagus triangulatinotus, new species.

Lemon, occiput, vertex, abdomen orange. As *triguttatus* but abdominal marks joined, a wide cross-stripe a bit beyond middle and a stripe along meson from it to the apical spot. Also following jet: Pronotum, cephalic margin scutum, large oval spot filling disk of exilla (axis longitudinal), an oblique (brown) line from tegula to mesal apex propodeum. Tibial spur equal tarsal 1, elongate. Fringes not extremely short. Jaws not seen.

Dayboro, forest, October 8, 1922.

Eupelmus incredibilis, new species.

As *mawsoni* but twice larger, ovipositor whitish at tip, metallic of legs distinct (all of tibia 1 save each end), leg 3 as leg 1 (their femora metallic laterad only), tibia 2 metallic basal half save at base; funicle 2 longest, twice longer than wide, equal pedicel. Lateral ocelli closer than each is to cephalic, near eye.

Pentland, forest, November.

A MISCELLANY OF NEW SPECIES OF THE LOWER HYMENOPTERA FROM AUSTRALIA, WITH NOTES

By A. A. GIRAULT

Mesamotura corticis, new species (Cleonymidae).

As genotype but femur 3 with no aeneus above distad, tibia 3 aeneous, except at about proximal ¼; the basal thick part of ovipositor valves just about ½ rest (in other less than half);

metapleurum not conspicuously fuzzy (the propodeum behind the spiracle less hairy), the eyes are a bit more convergent at occipital vertex (so that a line from lateral ocellus parallel to meson nearly touches them); segments 2-6 are more deeply excised caudad. Coxa 3 not fuzzy along dorsal edge.

One female from trunk of dead tree, Gympie, February 3, 1925.

Mesamotura aristophani, Girault.

One female, Chinchilla, Q., February, 1924 (Queensland Museum).

Ericydnus hemipterus Girault (Encyrtidae).

From ova *Tectacoris banksii,* F. G. Holdaway, Biloela, Q. February, 1925. A fully winged form was present and this resembles the same form of *megymeni* Dodd (at least as far as fore-wing and antennae are concerned, these compared).

Australurios, new genus (Eunotinae).

No tuft hairs base abdomen. Antennae at clyppeus, no distinct ring-joint.

As *Ophelosia* (hind tibial spur over ½ the elongate first tarsal joint) but wing simple, hyaline, marginal a bit exceeding the postmarginal, which is about twice the stigmal. Segment 2 two-thirds the surface, glabrous. Scutellum simple. Axilla widely separated. Pronotum transverse. Propodeum transverse, produced into a distinct stout neck. Antennae somewhat as in male *Ophelosia* as to shape; 7 joints, the long club solid, the four funicles all attached on one angle of apex, 1 longer than wide, its apex concave, rest triangular, wider than long, all with longish pale hairs from the side opposite to base (attached side) Pedicel globular, small. Club 3 times longer than wide. Jaws small, edentate.

Australurios longispina, new species.

Black, prothorax, scutum, parapsides and propodeum with dense short hairs. Scutellum scaly, with 3-4 marginal bristles on each side. Legs, antennae brown yellow, apex abdomen, venation pale, wing clean. Vertex smooth, with numerous short

hairs, face smooth. Propodeum with a narrow median carina. Apex club dusky.

A female, Southport, sand dunes, July 2, 1925.

Dicondylus sulciscutellum, new species (Dryinidae).

Black, knees, tibiae, tarsi, antennae, palpi, chela, dull red. Stigma black, a dull cloud from it caudo-distad well toward caudal margin. Basal veins yellow, wings clear. Jaws equally bidentate. Face sunken, rugulose, with a median carina, hispid. Vertex flat, from above not twice wider than long (excl. eyes), shining, not hairy, rugulose; ocelli in equilateral triangle, lateral very far from eyes. Basal joint maxillary palpus dusky, shortest, 3 and 5 equal, longest; scape curved; funicle 1 longest, 2 and 3 shortening, 3 exceeding pedicel.

Pronotum contracted at neck, much wider than long, crossstriate, with white pile. Scutum, parapsides rugulose, furrows foveate. Scutellum convex, glabrous, with foveate median sulcus and scattered punctures, small, a bit wider than long. Propodeum truncated near base, the large truncation with a large, shallow median basin, finely rugulose (coarsely so at base before the truncation). Petiole longer than wide. Abdomen ovate, polished except more or less distad, 3 much longest.

From a Fulgorid, October 24, 1903, Townsville, F. P. Dodd.

Austrapohua, new genus (Pimplinae).

Differs from *Apophua* Morley in having the 1st recurrent in hind wings intercepted somewhat *above* the centre, calcaria of tibia 1 not elongate, metathoracic spiracle narrow, reniform, lateral; of abdomen small, subcircular, central on 1, gradually moving toward base on others. Labrum flat hemispherical. Ovipositor not ½ abdomen. Habitus of *Xanthopimpla*. Tarsal claws simple, strong, curved, acute, pulvillus large.

Austrapophua xanthopimploides, new species.

Flavous, wings clear, stigma black. Following black markings: Meson of frons from antennae, ocellar area and upper ½ mesal occiput continuously; a strong line across scutum just before middle, its lateral end triangularly enlarged; suture pre-

ceding scutellum; basal margin propodeum (more narrow mesad), distal ½ 5 of tarsi with pulvilli; base of last 2 pairs metatarsi, base and apex tibiae 2 and 3. A wide stripe across middle abdomen 1; an oblique dot on 2 toward margin and base; ovipositor valves; basal two-thirds of 3 (less at meson); all of 4 above save very narrowly at apex and entirely along meson (widely yellow); a dot lateral margin of 5; all of 6 save at meson caudad; all of 7 (dorsad, of course) save cephalolaterad more or less widely; meson of 8 save at each end, 1 longest, then 2, 7 and 8. Antennae black save scape and pedicel beneath and basal flagella, not as long as body. Face very minutely punctulate; abdomen save 1, punctate, rest of body glabrous. A looped carina from base propodeum each side of meson to 1st tooth-like apophysis and forming hind margin of the black; a convex carina across middle and between the smaller second apophysis, continued along lateral margin to 3rd apophysis at lateral apex. Eyes strongly emarginate.

Riverview, Q., forest, September 14, 1925, W. A. T. Summerville.

Austrapophua summervillei, new species.

As the preceding but apex of fore wing infuscated, apices of tibiae 2-3 not black; of head only ocellar area black; antennae red; no black between scutum and scutellum, that base propodeum of uniform width: the basal apophysis and looped carina on propodeum are absent, the cross-carina not so arched mesad, the spiracle is in an irregular depression; and the abdominal black is sparser, 1 has but a median black spot distad of middle, 2 all yellow, 3 is black to the transverse impression, 4 as in genotype, 6 following dark above. 5 of third tarsus all black. The second recurrent nervure is broken at middle in both species and the first segment has a pair of converging carina on disk leading from base. Parastigma pale.

Department Agriculture and Stock, Hy 420, Tweed Heads, N. S. Wales, 9-11-10. T. Batcheler.

Pammegischia aroueti, new species (Evaniidae).

Black, segment 2 save apex and dorsal meson for basal ½,

femora 1-2 ferruginous, femur 2 dark red, tibiae 1-2 pale yellow; tarsi save apex and the basal joint of 3 (save at apical ¼), white, also a wide ring on ovipositor valves toward apex and less than ½ the length. Stigma jet. Apex wing fuscous. Ovipositor circled under body, exceeding abdomen. Funicles 3-6 equal, longest, 1 shortest, smaller than pedicel, 14 joints. Lateral ocelli nearer median than to eye. Hind coxae large, normal. Scape reddish beneath. Propodeum rugulose. Pubescence very finely pilose. Finely scabrous; scutum cross-striate, also parapsides. Parapsidal furrows distinct. Eyes naked. Palps black. 1st recurrent oblique, entering cubital somewhat distad of middle; 2nd-3rd transverse cubitals pale at caudal 2/3 (about). Abdomen finely closely reticulated and pilose, the long 2 glabrous. Scutellum more or less transtrigose.

Gympie, on dead tree. January.

TWO NEW PARASITES OF BUG EGGS

(*Hymenoptera*)

By A. A. GIRAULT

From several masses of eggs of the bug *Biprorulus bibax* Breddin, the writer has reared three distinct species of Proctotrypidae while a fourth parasite, *Eupelmus biproruli*, has already been described. Two of the above Proctotrypids proving unknown, are herewith described; the third, a species of *Dissolcus*, also proved to be new and is described elsewhere. All are from Queensland.

Telenomus biproruli, new species.

Black; wings clear, veins black, knees, tibiae, tarsi, scape save apex and more or less above, apex pedicel, dark red. Head wider than thorax, rugulose (meson of face coarser with cross-rugae), the orbits margined; 1-2 coarse rugae parallel to the carinated ventral occipital margin run down the cheek below eye. Thorax sculptured like head; postscutellum longitudinally striate; propodeum with irregular rugae. Segment 1 transverse, striate more coarsely than 2, latter striate, apex glabrous, the

striae finer toward apex, the segment a bit wider than long, attaining two-thirds surface; remaining segments very transverse, with scattered setae and pin punctures. Funicle 1 somewhat exceeding pedicel, twice longer than wide, 2 subquadrate, 3 a bit wider than long; club 6-jointed, 2-4 subequal, largest, twice wider than long, 1 smallest 5 barely smaller than 4, 6 ovate. Pilosity of thorax very short. Marginal not quite half stigmal, latter slenderly clavate, nearly ½ shorter than postmarginal.

From eggs *B. bibax* on orange, Roma.

Emerged December 17, 1925.

Differs from *oecleus* in colour of legs, antennae and venation, the shorter funicle 2.

Telenomus glabriscrobus, new species.

Like *oecleus* Dodd but at once differing in having the antennal scrobes differentiated from the general head surface in the form of two parallel obcuneate glabrous areas reaching over half way to median ocellus (in *oecleus* scrobes not or barely differentiated, the area sculptured more or less transrugulosely). Also, the femora black save widely at apex, antennals 5-6 nearly black, segment 2 is a bit longer than wide, its apex not glabrous but densely pin punctulate, as are the following very short segments.

Moreover, the lateral ocelli are more separated from eye, the scrobes are margined, the cheeks below the eyes bear one or two more coarse carinae, the postmarginal is only a third longer than stigmal and the venation is black.

From *biproruli* in colour, shorter postmarginal, longer segment 2 which is pin-punctulate at apex and the glabrous scrobes.

Reared with *biproduli,* one female.

Hadronotus hirsutioculus Girault.

The host was inadvertently published as *Tectacoris* instead of as *Aulacosternum nigrorubrum* Dal.

NEW SPECIES OF CHALCIS FROM AUSTRALIA

(*Hymenoptera*)

By A. A. GIRAULT

Chalcis anselmi, new species.

Black; tegulae, antennae, abdomen and legs crimson; base coxa 3 above black; tarsi, apex femur 3, tibial tips obscurely and dorsal aspect tibia 1 very narrowly, yellowish. Pubescence golden, not very conspicuous, abdomen small. Otherwise normal; 13 femoral teeth. Funicle 1 quadrate. Coxa 1 black; hairs of scutellum exceeding those of scutum. Male the same but coxa 3 nearly all black. Female wings lightly dusky, veins black.

Kuranda, F. P. Dodd.

Chalcis miltoni, new species.

Dark red head and antennae, venation black, wings clear; golden as follows: distal ½ femur 1 (less mesad); apex femur 2 (more widely mesad); apex above femur 3; tibiae 1 and 2 except red widely at middle beneath; tibia 3 except red at base and a red middle cinctus which does not join across dorsal aspect. The dorsal yellow basal spot from above, tibia 3, elongate, much exceeding basal red and exceeding the indicated cinctus and distal yellow. Flagellum with golden hairs. Lateral ocelli a bit closer to eye. Funicle 1 quadrate, pubescence not conspicuous; otherwise as *regina*. Male.

Nelson, May, 1920, A. P. Dodd.

Chalcis caesar, new species.

Black, including tegulae except apex which is narrowly yellow. Golden: tarsi, tibiae except basal one-third more or less of 3, knees, apices widely of femora 1 and 3. Fore wing with costal margin dusky. Patch of setae on dorso-lateral aspect segment 2 near apex. Basal teeth, femur 3, large and acute, hairs of scutellum exceeding those of scutum. Follows *persplendidipes*.

Nelson, November, 1920. A. P. Dodd.

Chalcis minutissimus, new species.

Antennae on level with eyes; lateral ocellus twice closer to

eye; smallest species, size of *Eurytoma;* cinctus tibia 3 red; legs yellow and black.

Mackay Museum, 1 male, N. S. Wales. Two females, S. Australia (types).

Chalcis shakespearei, new species.

As preceding. Antennae, abdomen, most of legs, red; cinctus tibia 3 golden.

Mackay Museum, a female, N. S. Wales.

Chalcis pandani, new species.

As *minutissimus*. Annulus tibia 3 black and longer, segment 3 longer and polished, tibia 1 black save base and apex. Male, female on *Pandanus* leaf-miner.

Darwin, N. T., May 28, 1915. G. F. Hill.

Chalcis persplendidipes, new species.

Black, legs save coxae golden, also tegula.

Nelson, A. P. Dodd.

Chalcis unguttifemur, new species.

Follows *caesar*. Pubescence golden, so legs save coxae, basal ⅔ femur 3 mesad and an irregular spot middle lateral aspect; tegula golden.

A female, Mackay Museum, N. S. Wales.

CORRECTION

Euthrips biguttaticorpus Girault, this magazine, 1925, pp. 34-35, is *Anaphothrips signipennis* Bagnell, described from Ceylon. Identified by J. D. Hood.

NEW LEPIDOPTERA FROM MEXICO—I

By HARRISON G. DYAR

Family LYCAENIDAE

Thecla santans, new species.

Black above, the fore wing with an illy defined velvety black patch at end of cell and a pale blue area along inner margin from

base to beyond middle. Hind wing washed with pale blue from base over cell and below to tornus, the three black median venules cutting through more or less. A small red patch at tornus. Tail at end of vein 2 long, at vein 3 short, black, white margined and each with a little red speck at base. Beneath pale gray, washed with white over disk of hind wing; fore wing with a red bar at end of cell and an outer row of bars between the veins from vein 2 to costa; a submarginal dusky line, duplicated above; a narrowed line at base of fringe. Hind wing with three red marks, one below costa, one in cell, and one below base of vein 2; a narrow bar at end of cell; an outer band composed of red spots between the veins from costa to vein 3, then a band forming a W-mark on veins 1, 1a, and 2; margin shaded with gray containing a row of whitish lunules; terminal line red, not attaining apex; a red blotch at anal angle and one between the tails, each with a black marginal spot; between them some white scales on a black ground. Expanse, 26 mm.

Type, No. 39985, U. S. Nat. Mus.; Acapulco, Mexico, September, 1925 (R. Müller). Near *Thecla basalides* Geyer.

Family HESPERIIDAE

Bolla bistor, new species.

Dark brown above with blackish shadings defining very faintly narrow markings of the *Thanaos* type. The fore wing has three very small costo-subapical white specks and one below base of vein 3. Beneath dark brown, the fore wing smoothly marked, the white spots of the upper side repeated and a little enlarged. Hind wing irrorated with rufous yellow narrow scales evenly over the surface. Expanse, 35 mm.

Type, No. 39986, U. S. Nat. Mus.; Acapulco, Mexico, November, 1925 (R. Müller). Closely allied to *Bolla braco* H.-S. of Cuba.

Thanaos mercurius, new species.

Fore wing black, thickly irrorated with whitish hairs; two bands of black rings, the inner dislocated outward below vein 2 and a little more strongly whitish edged; a marginal row of very

indistinct rings, the whitish margins showing as pale dots. Hind wing brown-black with an outer and marginal row of faint diffused pale spots. Beneath brown-black; fore wing with traces of the outer band as pale spots, the marginal pale dots distinct, followed by a black line. Hind wing similar, the rows of dots distinctly but pale yellowish, the outer row evident, inbent at cell, the marginal row as on fore wing. Expanse, 25 mm.

Type, No. 39987, U. S. Nat. Mus.; Mexico City, Mexico, May, 1925 (R. Müller).

Thanaos quadratus, new species.

Fore wing brown, slightly lilacine, with broad inner, outer and marginal shaded black bands, the outer and marginal approximate; three small but distinct white costo-subapical white spots. Hind wing as fore wing, without white dots. Below the markings are repeated, but blurred and especially indistinct on fore wing, while a faint russet tint pervades the surface. Expanse, 28 mm.

Type, No. 39988, U. S. Nat. Mus.; Colima, Mexico, May, 1925 (R. Müller).

Atrytone xanthopolys, new species.

Bright orange yellow. Fore wing with a black border from cell to apex, around outer margin to middle of inner margin; an oblique linear mark at end of cell. Hind wing with a black band along costa, the rest of the wing clear orange yellow. Below chrome yellow at apex of fore wing and all but tornal area of hind wing, which with the disk of fore wing is orange; a black patch at the base of median vein of fore wing. Expanse, 25 mm.

Type, No. 39989, U. S. Nat. Mus.; Colima, Mexico, June, 1925 (R. Müller).

Family NOTODONTIDAE

Dasylophia ineminens, new species.

Fore wing light wood-brown with a gray shade. Three black streaks cut by pale veins from above cell, through upper part of cell and along median vein successively stopping further from the outer margin. A small black spot subterminally above vein 2.

Hind wing gray, whitish over disk, the veins dark. Expanse, 37 mm.

Type, male, No. 39990, U. S. Nat. Mus.; Colima, Mexico, September, 1925 (R. Müller). Allied to *D. eminens* Schaus, but the markings largely obliterated; perhaps a southern race of it.

Apatelodes jessica, new species.

Similar to *A. doramia* Dyar and originally determined as that species. A series shows it to be uniformly smaller, grayer, the outer line of fore wing narrower and less firm, the patch on inner margin slighter, less firm, less distinctly bimacular; outer dark line on fore wing narrow and as distinct as the oblique line. Hind wing with the pale line evenly curved, less angled or outflexed, usually not at all so. Beneath the pale line on hind wing is more even and forms a less excursion toward tornus. The general color grades from a whitish gray to ruddy brown-gray, much as *doramia* does; but here the olivaceous tint is generally lacking.

Twenty-nine males and one female are before me, Zacualpan, Mexico (R. Müller), one male from Cuernavaca, dated specimens June, July, August and September from 1912 to 1924. *Doramia* comes from the same localities, Cuernavaca and Zacualpan, so that the distinction must be specific and not racial.

Type, male, No. 39991, U. S. Nat. Mus.; a strongly marked specimen, Zacualpan, Mexico, June, 1915 (R. Müller). Paratypes, 28 males and one female.

Doramia perhaps should be placed in synonymy to *pudefacta* Dyar. The latter is the bright gray contrasted form, the former the brown duller form of what is probably the same species. The range of color is no greater than that I have just indicated for *jessica.* Single specimens look distinct; but the series of 25 before me intergrades quite continuously.

Apatelodes maudamia, new species.

A northern development of the *jessica* type. The subapical brown spot is edged not with two white spots but a narrow white doubly arcuate line, which departs from the submarginal

line at its lower end. The outer line is less distinct than oblique line, while the subbasal black spot on inner margin exists within the white cutting line, but beyond that is shaded and indistinct. Outer line of the hind wing below strongly excurved, resembling that of *pudefacta* rather than of *jessica*.

Type, male, No. 39992, U. S. Nat. Mus.; Venadio, Sinaloa, Mexico (A. Kusche, gift of B. Preston Clark).

Apatelodes floramia, new species.

A southern development of the *jessica* type. Size of *jessica,* the upper surface markings more as in *pudefacta,* but the oblique line on fore wing cuts across the outer dark line to the submarginal white one as in neither of the mentioned species. Hind wing with the white line angled and remote from the margin as in some specimens of *pudefacta,* but within it a narrow dark line, subparalleled to it, not shown in either of the named species. Wings below as in *jessica,* the outer line of hind wing curved and uniform, not strongly excurved toward the margin.

Type, female, No. 39993, U. S. Nat. Mus.; Guatemala City, Guatemala, August (Schaus & Barnes).

Family LASIOCAMPIDAE

Tolype mollifacta, new species.

Dark gray, the pale markings of the *velleda* type faintly shown. A white line at base of fringe on both wings, the hind wings gray, darker along the hairy inner margin. Thorax and tip of abdomen gray, the abdomen dorsally darker; a small tuft of flattened black hairs at posterior end of thorax. Expanse, 26-29 mm.

Types, two males, No. 39994, U. S. Nat. Mus.; Colima, Mexico, January, 1925, January, 1926 (R. Müller).

Family SATURNIIDAE

Hylesia colimatifex, new species.

Similar to the roseate forms of *chirex* Schaus. Rosy, with a little orange tint; apex of fore wing subfalcate. Lines not con-

trasted, a straight mesial one joined to the discal mark. A diffused wavy sub-terminal shade of lighter rosy. Hind wing with two faint straight parallel darker bands. Thorax and abdomen rosy orange without dark under markings. Beneath wings rosy without orange tint. A single straight darker rosy line across the middle of each wing, and a fainter submarginal one. Expanse, 40 mm.

Type, male, No. 39995, U. S. Nat. Mus.; Colima, Mexico, March, 1926 (R. Müller).

Family NOCTUIDAE

Hydroeciodes alternata, new species.

Light yellowish rufous, the subbasal space, round orbicular, full reniform and sharply bounded subterminal space of this color, the rest of the wing filled in with brownish; edges of the subterminal space and the veins crossing it dark; subbasal space crossed by coarse reticulations. Hind wing red irrorate over a subtranslucent pale ground, a dark terminal line and pale fringe. Margin notched at the end of obsolete vein 5. Expanse, 31 mm.

Type, female, No. 39996, U. S. Nat. Mus.; Xochimilco, near Mexico City, January, 1926 (R. Müller).

Perigea subluxa, new species.

Similar to *selenosa* Guenée and form *luxa* Grote but the reniform is picked out with a series of little white specks, the outer line similarly dotted. Hind wing uniformly blackish to the base. Expanse, 31 mm.

Types, two males, No. 39997, U. S. Nat. Mus.; Chiapas, Tabasco, Mexico, (R. Müller).

Perigea luxuriosa, new species.

Similar to *selenosa* Guen. The reniform has a round white spot in its lower part, surrounded by little white specks; subterminal line neatly dotted with white, the two dots opposite the cell largest. Hind wing of male pale at the base, of female dark brown throughout. Expanse, 33-35 mm.

Type, male, paratype, female, No. 39998, U. S. Nat. Mus.; male, Zacualpan, Mexico, September, 1909 (R. Müller); female, Cuernavaca, Mexico, August, 1906 (W. Schaus).

Xanthirinopsis, new genus.

Following Hampson's key in Vol. ix, Cat. Lep. Phal. Brit. Mus. (1910): Fore wing with areole; fore tibiae and tarsi without spines or claws; front with a small pointed process; eyes large, round; abdomen without crests; proboscis aborted, minute. Differing from *Conicofrontia* in having the palpi minute, not reaching the front and is a small delicate form resembling *Grotella*. Genotype, the following species.

Xanthirinopsis cataplaga, new species.

Fore wing chalky white with traces of inner and outer lines, the inner obsolete, the outer showing as faint dashes on the veins; between these two lines on the inner margin is an elongated brown and black mark, narrowing outwardly. Extreme costal edge yellow-brown. Hind wing tinged with creamy brown, broadly smoky along the margin; a faint dark outer line. Below, fore wing dark smoky brown; hind wing whitish, with a narrow smoky area along the costa. Expanse, 19 mm.

Type, male, No. 39999, U. S. Nat. Mus.; Zacualpan, Mexico, October, 1925 (R. Müller).

Family PSYCHIDAE

Pachytelia lepidopteris, new species.

Male antennae with long pectinations to tip; fore wing with the cell heart-shaped narrowed basally, reaching far toward the margin; veins 2, 3, 4, 5 well spaced, short; 6-7 stalked, 9-10 shortly stalked, 11 from cell; vein 1 joined to 1a by a strong bar, the base of 1a obsolete. Hind wing with the cell long, 2-6 well spaced, 7 from the cell, 8 curved, joined to cell by a bar at middle. Wings broad, rounded, entirely thinly black scaled. Expanse, 17 mm.

Types, two males, No. 40000, U. S. Nat. Mus.; Colima, Mexico, June, 1925 (R. Müller).

Family PYRALIDAE

Psara emphatica, new species.

Fore wing bronzy black brown, the lines black, the inner distinctly edged with white within, the outer so edged without. Inner line rather broad, only slightly flexed; orbicular a black point followed by a white one. Reniform a small black spot. Outer line straight from costa to vein 5, slightly outbent, then inbent to below reniform and straight to margin. A white terminal line, followed by dark dashes in the base of the fringe. Hind wing subtranslucent blackish, the fringe as on fore wing; a black discal spot in cell; mesial line black, strongly edged without by white, excurved over median venules, the part between vein 2 and inner margin straight and distinct, reaching the inner margin above tornus. Expanse, 25 mm.

Type, female, No. 40001, U. S. Nat. Mus.; Orizaba, Mexico, July, 1926 (R. Müller).

Argyractis trespasalis, new species.

Fore wing long, the apex pointed. Ground whitish and rufous scaled, overlaid with blackish shades mesially and terminally; inner line white, from costa inwardly oblique to inner margin, crossed by the black shade, which makes an outward point on submedian fold; a white space at end of cell, followed by a double black dash; outer line white, black edged within, from costa with a single flexure almost to margin at vein 3, then sharply reflexed to discal mark, then again reflexed to inner margin before tornus. A red stain at the inward point of flexure; termen narrowly red, preceded by white and separated therefrom by a black line. Hind wing with whitish ground; two basal broad diffused blackish bands; disk finely irrorate in black, its apical part occupied by a long irregular black ellipse; margin above tornus black with four metallic spots, preceded by orange and a black line within all. Expanse, 20 mm.

Type, female, No. 40002, U. S. Nat. Mus.; Chiapas, Tabasco, Mexico, June, 1926 (R. Müller).

Argyractis tessimalis, new species.

Fore wing shaded with dark brown on basal half and broadly along costa to apex, leaving the tornal area broadly whitish and shaded with orange. Inner line obsoletely indicated across the dark area. Outer line cutting the dark area subapically, orange tinted, inflexed, but lost below in the general orange shading. silvery white subterminal streak, not reaching apex or tornus; a longitudinal silvery white line at end of submedian fold. Hind wing dark on basal third; disk orange filled; termen with a velvety black area containing metallic scales, the black preceded by white and indistinctly divided into rounded spots, five marginal and three irregular ones in the second row; an upright silvery bar in the center of the disk. Fringe of both wings dusky. Expanse, 13 mm.

Type, male, No. 40003, U. S. Nat. Mus.; Chiapas, Tabasco, Mexico, June, 1926 (R. Müller).

Cataclysta dasymalis, new species.

Silvery white. Fore wing with a narrow slightly curved tawny inner line; following this a little curved dash from costal edge to upper end of cell; outer line slender, tawny, stained with black, from costa to vein 2, incurved to end of cell, where it touches the slender black reniform that is open below; thence broadly curved and to middle of inner margin. A subterminal tawny shaded line, obsolete at tornus. Terminal line slender, black, cutting sharply to apex, then inward to include a tawny terminal line. Hind wing similar, but the mesial (outer) line has simply a point at vein 5, and the terminal black line does not cut to apex. Expanse, 14 mm.

Type, male, No. 40004, U. S. Nat. Mus.; Chiapas, Tabasco, Mexico, July, 1925 (R. Müller).

A NOTE IN PSYCHODIDAE

(*Diptera*)

By HARRISON G. DYAR

Banks described *Psychoda albitarsis* from Ithaca, New York, in 1895, and was followed the next year by Williston, who

described *Pericoma albitarsis* from the Island of St. Vincent, West Indies. Banks made no use of the genus *Pericoma,* but placed all the species in *Psychoda.* Recently I received by the kindness of Dr. Banks authentic specimens of his *albitarsis,* which proves to be a *Pericoma,* thus rendering Dr. Williston's name a homonym. The following is suggested:

Pericoma willistoni, new name.

Pericoma albitarsis Williston (not Banks), Trans. Ent. Soc. Lond., 1896, 284, 1896.

I have no specimens of the St. Vincent species, but think there is no chance that it is the same as *albitarsis* Banks. The types of *willistoni* are those of *albitarsis* Will.

Pericoma apicalis (Banks).

Psychoda apicalis Banks, Proc. Ent. Soc. Wash., viii, 150, 1906.
Pericoma orillia Curran, Can. Ent., lvi, 218, 1924.

I have received authentic specimens of these two names from the respective authors, and fail to detect any specific difference. The authors of recent descriptions of Psychodidae have worked without autoptical acquaintance with the bulk of the species described before them, and it is to be expected that further synonymy will result when the various types have been examined and compared.

Psychoda albipuncta Williston.

This species is widespread through the West Indies, and what is apparently the same has been taken in Florida, Texas and South Carolina, but the male genitalia not compared. The larva makes itself very conspicuous by inhabiting the water in artificial receptacles in company with mosquito larvae. In Nassau, Bahamas, rain water used to be commonly conserved in tubs and barrels, and we have often seen the larvae of this Psychodid with those of *Culex quinquefasciatus* Say and *Aëdes aegypti* Linn. The unpleasant little black "worms" were at the surface with the mosquito larvae, and all would descend together when the receptacle was disturbed.

NOTE ON CORETHRELLA APPENDICULATA GRABHAM

(*Diptera, Culicidae*)

By HARRISON G. DYAR

This species was first made known from the Antilles (Jamaica), the larvae in water in tree-holes, feeding upon Crustaceans. The form occurring in Panama has been considered the same species (Dyar & Shannon, Ins. Ins. Mens., xii, 216, 1924). It was taken by Busck in bamboo. Lately I have received larva and adult from Mr. C. H. Bath through Dr. D. P. Curry, bred from water in the leaf bases of the wild pineapple (*Ananas magdalenae*) near Gatun, Canal Zone, Panama. Bred in this clean water, the larva and pupa are light yellow, not darkly colored as described by Dr. Grabham. The characters of the larva tally well in general with this description. I am unable to see the "short comb-like appendage" said to be inserted at the end of the antenna with the spines. The antennae fold back in V grooves in the sides of the head reaching the eyes. The apex of this groove next the eye is slightly serrate, and was possibly mistaken for a structure on the antenna. The ventral tuft of the last segment is said to consist of "four pairs of long simple setae." I find four setae, not four pairs. The small structures said to be present between the ventral tuft and lower anal gills cannot be found in my specimens. There are also similar discrepancies in the notes on the pupa. Most striking of all, the head is not compressed anterio-posteriorly, but latero-anteriorly, the front drawn out snout-shaped, the antennae resting against the lateral margins.

Since making these observations, I have received from Dr. Curry specimens from a tree-hole at Gatun, which agree well with Dr. Grabham's description (Ent. News, xvii, 344, 1906) except for the antennal comb. It is apparent that the wild pineapple form is a distinct species, in spite of the similarity of the adult. The name **Corethrella ananacola**, new species, is suggested.

Date of publication, November 8, 1926.

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Harrison G. Dyar, 804 B Street S. W., Washington, D. C.

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Insecutor Inscitiae Menstruus

Vol. XIV OCTOBER–DECEMBER, 1926 Nos. 10–12

VALEDICTORY

With this issue, Insecutor Inscitiae Menstruus will cease to appear. We have conducted the magazine through fourteen volumes, and we hope have presented matter of permanent scientific value. Each year there has been a financial deficit, and as year by year the costs of publication have mounted, this deficit has increased in size, although not relatively so, as our subscribers have all been loyal; but this is not the principal reason that has decided us to close. We have published as an individual, without the backing of a permanent society, and sooner or later, every individual life comes to an end. We think better to close the venture while we can do so in an orderly way, rather than to leave behind perhaps an incompleted volume and jumbled accounts.

In our initial number we mentioned the memory of Augustus Radcliffe Grote. Though many years have passed since he left us, and though his memory must fade, it is still with us the model and the inspiration with which we began this series of volumes. In closing, we wish to thank our subscribers and our contributors, without whose aid our joint undertaking would have failed.

Harrison G. Dyar.

NOTES ON BITING FLIES FROM VENEZUELA

(*Diptera, Culicidae, Psychodidae*)

By HARRISON G. DYAR and M. NUÑEZ TOVAR

Anopheles apicimacula Dyar & Knab.

The hypopygium of a male from Venezuela agrees with the Panama form. The reference of *apicimacula* to *maculipes* Theobald by the senior author (Ins. Ins. Mens., xiii, 192, 1925) is apparently erroneous and should be cancelled. There is no present indication that *apicimacula* extends to Brazil, and the names should for the present be held apart.

A larva before us falls with *vestitipennis* and *punctimacula;* but our material is insufficient to distinguish between the larvae of these three species (Ins. Ins. Mens., xiii, 188, 1925).

This is the common speckled legged *Anopheles* in Venezuela, but the rare one in Panama.

Haemagogus (Haemagogus) celeste, new species.

Green and blue with silvery abdominal markings, similar to *janthinomys* Dyar; male palpi short, female tarsal claws simple.

Male hypopygium. Side piece conical, about twice as long as wide, with many broad scales on the inner aspect; an expanded area with tubercles and short setae at base, adjoined by a small lobe bearing a dozen stout hairs. Clasper slender, with an articulated spine about a third of its length. Tenth sternites stout, pilose within, roundedly expanded on the outer third with one coarser seta there; filament conical, thickly pointed, darkly colored, with a recurved tail-piece from its base, a little longer than the tip itself and terminating in a fimbriated margin. Ninth tergites slender, quadrately ended, without teeth. Mesosome roundedly widened outwardly, with a central carina, furcate below.

Two males are before us, Maracay, Venezuela, November 11 and 15, 1926 (M. Nuñez Tovar).

Culex (Choeroporpa) innominatus Evans.

The larva of this species is before us. Head transverse, bulging on the sides; a spindle-shaped chitinized bar on each side nearly straight across above the mental plate, directed toward

base of antenna, but separated therefrom by a similar, much thicker piece. Antennae thick at the base and white; tuft beyond the middle of 20 long feathered hairs; outer part of antenna brown; tip with three long brown spines, two-thirds as long as the antenna itself, and a shorter paler one. Ante-antennal tuft coarse, in eight, dark and feathered. Other hairs detached apparently four in nearly straight line, large, coarse and single; but as they are detached in both specimens, this is not certain. Lateral abdominal hairs triple on fourth and fifth segments, double on the sixth. Comb of the eighth segment a large patch three rows deep. Air tube six times as long as wide, tapering on the basal half, the rest straight, the tip wide but not flared. Fine moderate pecten on the basal third, followed by five multiple paired tufts, progressively shorter outwardly, none displaced. Anal segment ringed by the plate, the gills slender, about as long as it, ventral brush moderate; dorsal hairs two long and a short on each side.

Culex (Choeroporpa) macaronensis, new species.

A small black *Culex*, characterized by the male genitalia. Side piece of normal shape, with a weakly chitinized area on the inner side bearing sparse short setae from distinct tubercles. Clasper snout-shaped, the apex roundedly enlarged, with a groove from the tip which forms an arc beneath the rounding; no eye-like seta. Inner division of the lobe of the side piece with the arms subequal, divaricate at about 75 degrees, each with a strong filament with expanded capitate and pointed tip. Outer division of the lobe drawn out into a slender arm, corresponding to the inner arm but not inwardly directed. At the tip of this, a single slender filament, slightly distorted; on the middle of the lobe is a large insertion from which a curved pointed tipped filament arises, and outwardly from this a spatulate tipped filament arises. Tenth sternites comb-shaped, with long slender stem and about ten teeth at tip. Mesosomal plate furcate, without third point, the inner limb running straight out, curved a little before tip and roundedly expanded, the outer arm short, forming an angular projection about mid-stem. Ninth tergites rather large, ovate, sparsely setose.

One male before us, collected at Mácaro, Venezuela (M. Núñez Tovar).

Miss A. M. Evans has described two *Choeroporpa* from Venezuela from the junior author's collecting; one, *innominatus* Evans, is before us, the larva being described above; the other, *tovari* Evans, appears indistinguishable from *leprincei* Dyar & Knab. In this species the leaf is occasionally found distorted, and while we have no slides showing exactly the appearance of Miss Evans's figure, we have several that are similar. *Sursumptor* Dyar, described from Colombia, falls in the vicinity of *educator* Dyar & Knab.

The species here described, *macaronensis,* is not related to any of these, but comes near *elevator* Dyar & Knab in the table.

Phlebotomus migonei França.

Phlebotomus migonei França, Bull. Soc. Portugaise Sci. Nat., viii, 230, 1920.

Phlebotomus (*Sergentomyia*) *migonei* França & Parrot, Arch. Insts. Past. l'Afr. du Nord, i, 284, 1921.

Phlebotomus migonei Larrousse, Etud. Syst & Méd. des Phlébotomes, 73, 1921.

Phlebotomus rangeli Núñez Tovar, Mosq. & Phleb. de Venez., 45, 1924.

This species was described from Paraguay. It is the commonest of the Venezuelan species.

Phlebotomus atroclavatus Knab.

Phlebotomus atroclavatus Knab., Ins. Ins. Mens., i, 135, 1913.

Phlebotomus (*Sergentomyia*) *atroclavata* França & Parrot, Arch. Insts. Past. l'Afr. du Nord, i, 284, 1921.

Phlebotomus atroclavatus Larrousse, Étud. Syst. & Méd. des Phlébotomes, 67, 1921.

Phlebotomus Tejeraæ Larrousse, Étud. Syst. & Méd. des Phlébotomes, 71, 1921.

Phlebotomus tejerae Núñez Tovar, Mosq. et Phleb. de Venez., 42, 1924.

Knab's original description is in error in stating "distance from the furcation of the second vein to the furcation of its upper branch about half as long as the uppermost branch." He should have said "somewhat shorter than the uppermost

branch." Making this correction, it is seen that *tejeraæ* Larrousse is not a different species. The senior author mounted a wing of one of Knab's types. The species is not common in Venezuela.

Phlebotomus squamiventris Lutz & Neiva.

Phlebotomus squamiventris Lutz & Neiva, Mem. Inst. Oswaldo Cruz, iv, 89, 1912.

Phlebotmus squamiventris França, Bull. Soc. Portug. Sci. Nat., viii, 225, 1920.

Phlebotomus (*Sergentomyia*) *squamiventris* França & Parrot, Arch. Insts. Past. l'Afr. du Nord, i, 284, 1921.

Phlebotomus squamiventris Larrousse, Étud. Syst. & Méd des Phlébotomes, 67, 1921.

Phlebotomus evansi Núñez Tovar, Mosq. & Phleb. de Venez., 44, 1924.

Taken rarely in Venezuela.

Phlebotomus longipalpis Lutz & Neiva.

Phlebotomus longipalpis Lutz & Neiva, Mem. Inst. Oswaldo Cruz., iv, 90, 1912.

Phlebotomus longipalpis França, Bull. Soc. Portug. Sci. Nat., viii, 217, 1920.

Phlebotomus (*Lutzia*) *longipalpis* França, Bull. Soc. Portug. Sci. Nat., viii, 234, 1920.

Phlebotomus (*Lutzia*) *longipalpis* França & Parrot, Arch. Insts. Past. l'Afr. du Nord, i, 283, 1921.

Phlebotomus longipalpis Larrousse, Étud. Syst. & Méd. des Phlébotomes, 66, 1921.

Phlebotomus otamae Núñez Tovar, Mosq. & Phleb. de Venez., 44, 1924.

Lutzia França (1920) is a homonym of *Lutzia* Theobald (1903). For *Lutzia* França we propose **Fransaia**, new subgenus, type *Phlebotomus longipalpis* Lutz & Neiva. The species occurs rarely in Venezuela.

In regard to *Phlebotomus maracayensis,* also described by the junior author, two types were originally in existence. One was given to Dr. Lutz; the other was destroyed by too much handling. We are unable at the present moment to identify this form.

ON SOME NAMES GENERALLY OMITTED FROM LISTS (LEPIDOPTERA)

By WILLIAM BARNES and F. H. BENJAMIN

In going over some early literature we found a quantity of names which have heretofore generally been omitted from lists.

Through the kindness of Dr. H. G. Dyar we have been able to place a number of the names which might otherwise have remained unplaced. We hope that our other correspondents will write us their ideas of the correct placement of the questionable names.

In Guerin, 1829—1844, Iconographie Regne Animal de G. Cuvier, Vol. II, plates; these plates also copied by Grey; the text of Guerin subsequently published. The plates, however, will hold the names.

"*Bombyx pensylvanica*", pl. 86, f. 5. We think this is probably *Malacosoma disstria.* Dr. Dyar states that he knows of no other similar larva to which the name might apply.

"*Sericaria ranaeceps*", pl. 87, f. 1. This seems to be *Datana floridana,* and will have priority. Dr. Dyar agrees.

"*Sericaria tessellata*", pl. 87, f. 2. This may be a mere emendation of the name *Phalaena tessellaris* A. & S. *(Halisidota).* Guerin has attempted to convey authorship to "Boisd." (Boisduval). We retain the name as an available synonym.

"*Orgyia detrita*", pl. 87, f. 4. We think that this is *Hemerocampa inornata* Beut., the name *detrita* having priority. Dr. Dyar thinks this correct, but suggests the possibility of a rubbed *leucostigma,* a possibility we had also considered.

"*Chelonia nubilis*", pl. 87, f. 4. Dr. Dyar considers this a figure of the larva of *Malacosoma disstria.* We are rather doubtful, but have no better determination to offer.

"*Platipteryx globulariae*", pl. 88, f. 9. Larva, pupa, and adult are figured. Dr. Dyar considers the name probably applicable to *Paraphia unipuncta* Haw., but the figured adult does not look much like that species. We know of nothing agreeing fully with the figure.

"Omopterus putrescens", pl. 89, f. 3. Hampson has already placed this and Dr. Dyar informs us that the larva seems correctly placed by Hampson. *Omopterus* is a synonym of *Zale*. *O. putrescens* is presumably a synonym of *Z. lunata*.

Harris, 1869, in Scudder's "Entomological Correspondence of Thaddeus William Harris, M. D."

"Hera chrysocarena", p. 149, a Doubleday manuscript name, the publication of which rests on the printing by Scudder of a letter from Harris to Doubleday. Both generic and specific names seem amply described by a bibliographical reference to Audubon, Birds Am., III, pl. 359. The specimens on which this manuscript name is based are also the types of *"Saturnia hera"* Harris, 1841.

"Acronycta sagittaria", p. 311. This appears to be the species going in collections as *interrupta* Gn. (*occidentalis* G. & R.). Dr. Dyar agrees.

"Acronycta americana", p. 313, pl. III, f. 2. This is *funeralis* G. & R., a determination with which Dr. Dyar agrees. As these insects are now classified, *Apatela americana* Harris, 1841, belongs in the same genus. *Acronycta americana* is, therefore, a homonym.[1]

"Mamestra persicariæ var. *americana"*, p. 317, pl. I, f. 11. According to Dr. Dyar this is *adjuncta* Bdv.

"Mamestra leucostigma", p. 317. According to Dr. Dyar this is *unicolor* Wlk. The name *unicolor* Wlk. has recently been given priority on Lists because of Hampson, Cat. Lep. Phal. B. M., IV. But Hampson overlooked the fact that *clandestina* Harris was described in 1841, Ins. Mass. Inj. Veg., p. 327, and has credited the name to the 1862 edition. The first available generic name known to us is *Triphæna* Ochs., type *Phalæna pronuba* L. designated by Duponchel, 1829.

"Ennomos philyria" and *"tiliæ"*, p. 320. Presumably two names for a single organism. Dr. Dyar states that he thinks

[1] It is of interest to note that the pioneer American Lepidopterist and Economic Entomologist, Harris, used the Hubnerian Tentamen *Apatela* in 1841, Rept. Ins. Mass. Inj. Veg., p. 317.

the names probably refer to *tiliaria* as this insect is more common on linden than *"Ennomos magnaria"*, which is the determination given by Scudder. As Harris described *tiliaria* in 1841, with a lengthy comment on its food plant (linden) and its life history; and as his manuscript names are dated 1849 in his notes, it is very likely that he had a species different from *tiliaria*. We suspect that Scudder's determination is correct.

"Pericallia quercaria", p. 322, pl. III, f. 5. Dr. Dyar, Scudder, and the authors seem in general agreement that this is presumably *filimentaria* Gn.

W. F. Kirby, 1884, Papilio, IV, 104, in some notes on Peale manuscript names.

"Geometra domestica", placed by Kirby as *"Prothurodes transversata* Dru. var. *transpinta* Wlk."

"Papilio lewisii", placed by Kirby as *eurymedon* Bdv.

"Papilio multicaudata", placed by Kirby as *daunus* Bdv. We included these last two names in our recent Diurnal List, but think it best to here call attention to the references. In fact we were obliged to use the name *multicaudata* Kirby as valid over *daunus* Bdv. which is a homonym.

"Aglaia anmilata", of which Kirby states, "(evidently a misprint for *annulata)* (= *Pseudohazis eglanterina* Boisd. var.)".

"Lasiocampa designata", placed by Kirby as *Hyperchiria janus* Cram. (not in U. S.).

"Aglaia nuttallii", placed by Kirby as *Pseudohazis eglanterina*. The name *nuttalli* was published by Strecker in 1875 based on specimens in Collection Peale from Head of Snake River, Rocky Mts. The origin of Strecker's name is thus brought to light.

"Pavonia iris", placed by Kirby as *Caligo atreus* Koll. (not in U. S.).

Latreille, 1823, Encyclopedie Methodique, IX.

"Hesperia lesueur", pp. 718 and 748. We have not yet placed this name which is said to be based on a specimen sent from the United States by M. Lesueur.

Hübner, Zutrage, II, p. 11, No. 115, ff. 229-230.

"Lampides balliston". The locality is given as Georgia. We suspect that this may be incorrect as we know of no species from southeastern U. S. resembling the figure. Perhaps someone will place this as some tropical species. There is, however, always a chance of a species from southern U. S. escaping notice for long periods of time, as in the case of *Problema bulenta* only recently rediscovered by Mr. Jones.

J. B. Smith, 1891, Can. Ent., XXIII, p. 121.

"Heliothis binotata" Walker manuscript name placed as a synonym of *Plusia æreides* Grt.

"Heliothis temperata" Walker manuscript name placed as a synonym of *Plusia ærea* Hbn. This is a homonym of *Plusia temperata* Wlk., (1869, Char. Undescr. Het., p. 41).

J. B. Smith, 1891, Trans. Am. Ent. Soc., XVIII, 108.

"Hadena latifascia", being a Smith manuscript name published as a synonym of *"Homohadena" elda* French. Subsequently, 1892, Bull. Am. Mus. Nat. Hist., IV, 185, Beutenmueller also published the Smith name as a synonym of *elda*.

A. R. Grote, 1895, Proc. Am. Phil. Soc., XXXIV, 419.

"Andropolia olorina var. *australiæ"*, being a name applied to black suffused specimens in the Henry Edwards' Collection. We wonder if it will prove to be a prior name for *olga* Sm.

UNDESCRIBED SPECIES OF TIPULINE CRANE-FLIES FROM TROPICAL AMERICA

(*Diptera, Tipulidae*)

By CHARLES P. ALEXANDER

The majority of the species described in this paper are from the State of Tachira, Venezuela, where they were collected by Messrs. E. B. and J. H. Williamson and W. H. Ditzler, to whom I am very grateful for the gift of this valuable material.

One additional *Holorusia* was included in Peruvian material collected by Parish and another in the extensive series of Tipulidae belonging to the Paris Museum and kindly loaned to me for study by my friend, M. Dr. Eugene Séguy. The types of all the species except this last-mentioned are preserved in the writer's collection.

Holorusia sinuosa, new species.

General coloration light brown; antennae with the flagellar segments indistinctly bicolorous; mesonotal praescutum with three reddish brown stripes; wings subhyaline with a very heavy and extensive brown pattern, including three blotches in cells *R* and *M;* vein R_{4+5} very sinuous; abdominal tergites trivittate with dark brown.

Male: Length, 17 mm.; wing, 20.5 mm.

Frontal prolongation of the head brown, slightly darker dorsomedially; palpi brownish black. Antennae short; first scapal segment dark brown except at tip; second scapal segment and first flagellar segment obscure yellow; remaining flagellar segments brown, the incisures very indistinctly paler. Head dark brown, the posterior orbits of the eyes paler.

Mesonotal praescutum testaceous brown with three reddish brown stripes, the interspaces darker brown behind; remainder of the mesonotum light brown, the scutellum and postnotum with an indistinct capillary darker line; a darker brown U-shaped area bordering the postnotal pleurotergite before the haltere. Pleura testaceous, indistinctly variegated with darker. Halteres dark brown, the base of the stem restrictedly yellowish. Legs with the coxae pale buff; trochanters obscure yellow; femora dark brown, the tips broadly blackened; tibiae dark brown, the tips narrowly still darker; tarsi very long, much exceeding the remainder of the legs, dark brown. Wings subhyaline with a very heavy and extensive brown pattern; prearcular cells pale; cell *C* obscure yellow, cell *Sc* brown; three brown blotches in cell *R,* the last at origin of *Rs,* narrowly connected with the second along vein *M;* the first of these blotches likewise includes the base of cell *M;* in cell *M* there is a second

blotch immediately beneath the second blotch in the radial cell but barely confluent with it; outer end of cell *M* darkened; stigma brown; veins beyond the cord in the radial field conspicuously seamed with brown, almost obliterating the ground-color; other cells beyond the cord and the distal portions of cells *Cu* and *Anal* brownish gray, the bases of the latter broadly pale, this including more than the basal half of cell *Cu,* the basal quarter of *1st A* and the basal half of *2nd A;* veins dark brown. Venation: Veins R_3 and R_{4+5} unusually sinuous, constricting cell R_3 near mid-length; cell *1st* M_2 relatively small, pentagonal, the basal section of M_{1+2} longest, that of M_{3+4} shortest; petiole of cell M_1 a little more than twice the length of *m.*

Abdominal tergites light brown, trivittate with brownish black; segments six to eight blackened; hypopygium brown; basal sternites pale.

Habitat: Peru.

Holotype, ♂, Yurimaguas, April 12, 1920 (H. S. Parish).

Holorusia guatemalensis, new species.

General coloration pale brown, the praescutal stripes obscure yellow; wings pale brown, heavily variegated with darker brown and subhyaline; cell *1st* M_2 small; *Rs* long, paralleling R_1.

Male: Length, 13.5 mm.; wing, 18.5 mm.

Frontal prolongation of the head obscure brownish yellow, the nasus infuscated; palpi dark basally, brightened outwardly. Antennae small; scapal segments obscure yellow; flagellum dark brownish black; first scapal segment very long. Head light brown, paler anteriorly.

Mesonotal praescutum pale brown with four obscure yellow stripes; scutum similarly marked, the centers of the lobes being pale; remainder of mesonotum obscure brownish yellow. Pleura obscure yellow. Halteres brown, the base of the stem obscure yellow. Legs with the coxae and trochanters obscure yellow; legs long and slender, brown, the tips of the femora and tibiae dark brown. Wings with a pale brown tinge, variegated with darker brown and subhyaline; prearcular region and cells *C* and

Sc more yellowish; darker brown areas at the stigma; origin of *Rs;* in bases of cells *R* and *M;* at about one-third the length of cell *R;* at near midlength and at distal end of cell *M;* wing-apex darkened; the subhyaline blotches appear as interspaces between the darkened areas in cells *R* and *M,* in cell *1st* R_1, base of cell R_2 and in the bases of cells *Cu* to *2nd A;* veins dark brown. Venation: Sc_2 ending before the fork of *Rs,* the latter vein very long, strongly arcuated at origin, running parallel to R_1; R_{2+3} straight; R_3 and R_{4+5} arcuated, constricting cell R_3 near midlength; cell *1st* M_2 small, pentagonal, the basal section of M_{3+4} the shortest element of the cell, the other elements more nearly equal in length; cell M_1 deep, twice as long as its petiole.

Abdomen pale brown, the incisures narrowly pale; a subterminal brownish black ring, including tergites six and seven and sternite seven; hypopygium pale. Male hypopygium of type with the ædeagus long exserted.

Habitat: Guatemala.

Holotype, ♂, In the Paris Museum, labelled "19 - 55", Angrand.

The body of the type is somewhat discolored and the coloration is discussed in general terms only.

Holorusia strangalia, new species.

General coloration brown; antennal flagellum bicolorous; mesonotal praescutum with four reddish brown stripes that are narrowly margined with darker brown; pleura yellow; wings gray, with a heavy brown pattern that includes the broad costal margin and apex; a large brown blotch in cell *M;* abdomen of male with a black subterminal ring, the hypopygium yellow.

Male: Length, 15 - 15.5 mm.; wing, 18 - 18.5 mm.

Female: Length, 19 mm.; wing, 20 mm.

Frontal prolongation of the head brownish yellow; nasus elongate, black; palpi brownish black, the terminal segments passing into obscure yellow. Antennae (male) of moderate length, if bent backward extending about to the wing-root; scapal segments yellow, the second brighter; basal flagellar

segments bicolorous, the basal half of each dark brown, the distal portion obscure yellow, the terminal segments more uniformly dark brown. Head light brown, more yellowish on the front; a capillary brown median line; orbits paler.

Mesonotal praescutum brown with four conspicuous reddish brown stripes, each of which is margined with dark brown; scutum brown, each lobe with a reddish brown blotch near the anterior margin; scutellum and postnotum dark brown, the latter sparsely pruinose; posterior margin of scutum, the scutellum and postnotal mediotergite with an appressed yellow pubescence; pleurotergite pale, concolorous with the pleura, the caudal half darker. Pleura yellow. Halteres brown, pale basally. Legs with the coxae yellow; trochanters strongly tinged with greenish; femora and tibiae brownish testaceous, the tips darker; tarsi brown; claws toothed. Wings gray with a heavy brown pattern; costal region, including cells *C*, *Sc* and anterior half of *R* dark brown; wing-apex in cells *2nd* R_1, R_2 and R_3 dark brown; stigmal spot still darker brown; a seam along *Cu* and *m-cu;* a large rectangular blotch near midlength of cell *M* brown; cell *M* and a small area before the stigma subhyaline; in some specimens a subhyaline spot in the outer ends of cells R_2 and R_3; veins dark brown. Venation: Vein R_{4+5} strongly and irregularly sinuous, constricting cell R_3; second section of M_{3+4} longer than the basal section of the same.

Abdomen brown, the tergites indistinctly marked sublaterally with dark brown; segments six and seven blackened to produce a subterminal ring; hypopygium large, compressed, conspicuously yellow.

The female is similar to the male but the antennae are shorter; no dark subterminal ring on abdomen. Ovipositor with the valves conspicuous, straight, compressed.

Habitat: Venezuela.

Holotype, ♂, La Fria, Tachira, April 14, 1920 (J. H. & E. B. Williamson and W. H. Ditzler).

Allotopotype, ♀, April 17, 1920.

Paratopotype, ♂, April 17, 1920; *paratype,* ♂, Tachira, Tachira, April 7, 1920.

Tipula zonalis, new species.

General coloration orange-yellow; wings faintly tinged with brownish, the costal region, apex and veins beyond the cord conspicuously seamed with brown; abdomen with a narrow black subterminal ring.

Male: Length, 11 mm.; wing, 11.2 mm.; antenna, 7.3 mm.

Female: Length, 14 mm.; wing, 12.2 mm.

Frontal prolongation of the head shiny obscure yellow; palpi testaceous, the terminal segment darker. Antennae (male) elongated; scape obscure yellow; first flagellar segment yellow, dark brown subterminally; remaining flagellar segments black, the extreme base and the apex of each segment conspicuously yellow to produce an annulate appearance. Head shiny obscure yellow.

Thorax shiny orange-yellow, without markings. Pleura yellowish testaceous, immaculate. Halteres obscure yellow, the knobs brown. Legs with the coxae and trochanters concolorous with the pleura; femora and tibiae brownish yellow, the tips narrowly brownish black; tarsi dark brown. Wings with a faint brownish tinge, the base, costal region, apex and the veins beyond the cord conspicuously seamed with darker brown, the darkened areas including cells *C, Sc,* distal half of cell *1st* R_1, all of cells *2nd* R_1 *and* R_2 and all but the base of R_3; the cells beyond the cord have pale centers; veins dark brown. Venation: *Sc* comparatively short, Sc_2 ending about opposite one-third to one-fifth the length of *Rs;* R_{2+3} longer than R_2; petiole of cell M_1 about one-half longer than *m;* cell *1st* M_2 elongate-pentagonal; basal section of M_{1+2} and *m* subequal; *m-cu* at or immediately before the fork of M_{3+4}.

Abdomen shiny obscure yellow; segment seven and the base of eight deep black. In the female the lateral margins of the tergites are distinctly blackened, the mid-dorsal line less distinctly darkened. Male hypopygium with the ædeagus tremendously exserted, about one-half longer than the entire body. Ovipositor with the tergal valves somewhat fleshy, as in *T. smithi* Alexander, to which the present species is obviously allied.

Habitat: Venezuela.

Holotype, ♂, Tachira, Tachira, April 4, 1920 (J. H. & E. B. Williamson and W. H. Ditzler).

Allotopotype, ♀.

Tipula zonalis is allied to *T. parishi* Alexander (Brazil) and *T. smithi* Alexander (Brazil).

Tipula detecta, new species.

General coloration brown and yellow; antennal flagellum entirely dark brown; mesonotal praescutum with four darker brown stripes; wings with a strong brownish tinge, more suffused along the costal region; tip of R_2 preserved; abdominal tergites reddish brown, the lateral margins conspicuously blackened; tergite seven entirely blackened; sternites uniformly obscure yellow.

Female: Length, 17 mm.; wing, 16 mm.

Frontal prolongation of the head obscure yellow, a little darker dorso-medially and on nasus; basal two segments of palpus brown, the terminal segments conspicuously yellow. Antennae with the scape yellow; flagellum dark brown. Head brown, very narrowly and indistinctly paler on the posterior orbits; a darker brown median vitta.

Mesonotal praescutum rather bright yellow, darker behind; four darker brown stripes, the intermediate pair narrowly separated for the most of their lengths, connected posteriorly, their inner margins narrowly bordered with darker; scutum obscure brownish yellow, the centers of the lobes dark brown; scutellum and postnotum obscure brownish yellow. Pleura yellow with a faint whitish pruinosity. Halteres rather long and slender, dark brown. Legs with the coxae and trochanters concolorous with the pleura; remainder of the legs dark brown, the femoral bases a little paler; basitarsi much longer than the tibiae. Wings with a strong brownish tinge, cells *C* and *Sc* darker brown; stigma oval, still darker brown; small obliterative areas before the stigma and across the base of cell *1st* M_2, extending from cell *R* to the base of cell M_3; veins brownish black. Venation: Sc_2 ending about opposite one-third the length of *Rs;* distal sec-

tion of R_2 preserved; cell M_1 deep, its petiole about one-half longer than *m;* cell *1st* M_2 elongate-pentagonal, the basal section of M_{1+2} and *m* subequal and parallel to one another; second section of M_{3+4} relatively long; cell *2nd A* long and narrow.

Abdominal tergites reddish brown, the lateral margins broadly and conspicuously brownish black; on segment seven and the posterior half of segment six producing a subterminal ring; genital segment light brownish orange; sternites obscure yellow. Valves of the ovipositor dark brown, only the tips horn-colored; tergal valves comparatively deep, straight, the tips truncated; sternal valves much shorter but similar in shape.

Habitat: Venezuela.

Holotype, ♀, Tachira, Tachira, April 4, 1920 (J. H. & E. B. Williamson and W. H. Ditzler).

Tipula detecta belongs to the group of *T. effeta* Alexander of Peru. For a discussion of this group of species, see Proc. Acad. Nat. Sci. Philadelphia, 1921, Pt. 1: 100-102; 1921.

Tipula tecta, new species.

General coloration light brown; male antennae elongate; wings brown, the stigma darker brown; distal section of R_2 atrophied; abdominal sternites yellow, the incisures heavily marked with brown.

Male: Length, 11 mm.; wing, 11 mm.

Frontal prolongation of the head comparatively short, obscure yellow above, darker laterally; nasus short and broad; palpi black, the terminal segment fading into yellow. Antennae with the scape yellow; flagellum dark brown; antenna elongate, if bent backward extending to beyond midlength of the third abdominal segment; flagellar segments with a well-marked basal swelling. Head grayish brown, the front yellow.

Mesonotal praescutum light brown with three darker brown stripes, the broad median stripe very indistinctly split anteriorly by a pale median line; remainder of the mesonotum brown. Pleura pale buffy yellow. Halteres long, brown. Legs with the coxae concolorous with the pleura, the fore coxae darker, the coxae provided with long pale setae; trochanters pale;

legs very long and slender, brownish black, the femoral bases paler. Wings with a strong brownish tinge, cells *C* and *Sc* slightly darker; stigma oval, dark brown; conspicuous subhyaline areas before and beyond the stigma; a faint obliterative area in cell *1st* M_2, passing into cell M_3; veins dark brown. Venation: Sc_2 ending just before midlength of *Rs*, the latter about one-half longer than R_{2+3}, gently arcuated at origin; distal section of R_2 entirely atrophied; cell *1st* M_2 narrowed distally, *m* being only a little longer than *r-m*; petiole of cell M_1 about as long as the basal deflection of R_{4+5}; *m-cu* about at the fork of M_{3+4}, the latter vein short, only about one-fifth the length of the first section of M_3; cell *2nd A* of moderate width. Macrotrichiae on veins *Sc*, *R*, *r*, R_{2+3}, R_3 and R_{4+5}.

Abdomen yellowish brown, the tergites indistinctly trilineate with dark brown; segments seven and eight black; sternites yellow, the base and apex of each segment conspicuously dark brown medially. Male hypopygium conspicuously yellowish brown. Ninth tergite with a deep U-shaped notch, the lateral lobes small and narrow; from the base of the notch arise two conspicuous chitinized lobes directed caudad, separated from one another only by a small oval notch, their apices obliquely truncated and microscopically denticulate.

Habitat: Venezuela.

Holotype, ♂, Tachira, Tachira, April 10, 1920 (J. H. & E. B. Williamson and W. H. Ditzler).

Tipula tecta is a doubtful member of the genus, since it possesses some characters of the subtribe Dolichopezaria.

A NOTE REGARDING TRICHOPSYLLA LOTORIS STEWART AND NEOPSYLLA STRIATA STEWART

The types of *Trichopsylla lotoris* and *Neopsylla striata*, which were described in the last number of Insecutor Inscitiae Menstruus as new, have been placed in the Cornell University Museum under the following type numbers: *T. lotoris*, type number 770 and *N. striata*, type number 771.

M. A. Stewart.

OBSERVATIONS ON ANOPHELES WALKERI AND ANOPHELES ATROPOS[1]

(*Diperta, Culicidae*)

By W. H. W. KOMP

During the past several years observations have been made on the distribution, life-history and biology of two apparently closely related species of Anopheles, *A. walkeri* Theobald and *A. atropos* D. & K., which are here reported and summarized.

Anopheles walkeri is widely distributed in North America, being reported from Lake Simcoe, Ontario, Canada, and from Minnesota, Michigan, Massachusetts, New York, District of Columbia, Virginia, Arkansas, and Louisiana, in the United States.

Anopheles atropos seems to be confined to the Gulf Coast of the United States, being reported from Florida Keys, Fla., Buras, La., Terrebonne Bayou, La., Weeks Island, La., Ship Island, Miss. and Gulfport, Miss.

Recently several observers have filled in the gaps in the life-history of these two species, the larval stages of both having been described, and the life-history fairly well followed out. Matheson and Shannon (1) found the larvae and males of *Anopheles walkeri* at North Fair Haven, N. Y., in 1923, and G. E. Beyer (2) bred *Anopheles atropos* from eggs obtained from captive females, but was unable to find the natural breeding-places of the larva.

The writer has made observations on the breeding-places of *Anopheles walkeri,* its larvae, pupae and life-history, and has compared the two species *walkeri* and *atropos,* coming to the conclusion that two very closely related species exist, one breeding in fresh water *(walkeri)* and the other (*atropos*) in brackish or salt water. The observations leading to this conclusion form the basis of this paper.

Observations on A. ATROPOS

In December, 1921, an influx of Anopheline mosquitoes was

[1] From Field Investigations of Malaria, U. S. Public Health Service.

noted at U. S. Veterans' Hospital No. 74, at Gulfport, Miss. These mosquitoes were identified locally as *A. crucians* and *A. quadrimaculatus*. A second influx was noted in February, 1923, and the writer was detailed to investigate the source of the pest. The possibility of local breeding sufficient to account for the influx was eliminated, as the hospital was in a controlled area, and an extensive examination, covering several days, showed almost no local production in the neighborhood. Therefore the possibility of a migration from the coastal islands was considered, and on February 23d a survey of Cat Island, 8 miles south of Gulfport in the Mississippi Sound, showed immense numbers of imagoes of *A. crucians* and *A. atropos*. Very few adult *Aedes sollicitans,* the common salt-marsh breeder of the region, were noted at this time. A second visit, to Ship Island, several miles east of Cat Island, and 13 miles south of the mainland, was made on March 20th. Several days were spent on the island at this time, to observe the species, and if possible to find the local breeding-places of *A. atropos*. The swamps on the eastern end of the island were thoroughly collected over, and more than 100 Anopheles pupae and over 300 larvae were taken. The adults emerging from these waters were without exception *Anopheles crucians*. Yet *A. atropos* imagoes outnumbered those of *A. crucians* on the island by almost two to one. A collection of adults made on Cat Island the next day showed no *A. crucians* present, while *A. atropos* was so numerous that the number caught was limited solely by the rapidity with which they could be transferred from the collecting tube to a cage.

On the evening of March 21st a mosquito net was set up on the beach on Ship Island, in the salt grass, and two observers remained inside for one and a half hours. Only 75 imagoes were caught during this time, comparatively few considering the numbers in the neighborhood. At this time the first males of *A. atropos* ever captured were taken from a swarm hovering in the protection of some low bushes near the beach. The swarm was composed of males of *A. atropos* and of *Culex salinarius*. Only three males were taken at this time, two of

which were subsequently accidentally destroyed, while the third is mounted for examination of the genitalia, and is deposited in the U. S. National Museum.

On March 23d about 800 female *A. atropos* were collected between 7.30 and 11 a. m. in the tall grass near a group of buildings. Only two *A. crucians* were noted at this time. The adults of *A. atropos* are vigorous biters, attacking freely any part of the body exposed, and biting in broad daylight, even flying some distance from shore to attack a party in boats. A number of *A. atropos* caught at this time were carried to Gulfport by motor-boat, and thence to the field laboratory at Brewton, Ala., by automobile, somewhat over 100 miles. A number of these adults were dissected, the remainder being kept alive over water in order to obtain ova. The females dissected showed the presence of motile spermatozoa in the spermathecae, and several others showed fairly well developed ovaries. However, only two females laid eggs. Larvae hatched normally from these, reaching the first molt, but dying before reaching maturity.

During the month of April, 1922, with the cooperation of the Medical Officer in Charge of the Veterans' Hospital at Gulfport, collections of adult Anophelines were made in Gulfport and vicinity, and forwarded for identification. For the period from April 5 to April 24, nineteen collections were made, and 139 Anophelines were taken, of which 84 were *A. crucians* and 55 *A. atropos*. No breeding-places of any consequence existed on the mainland, as a zone several miles wide extending the length of the coast for 28 miles had been drained and breeding eliminated as part of a program of extra-cantonment sanitation.

The observations made during this period show the following facts:

1. A sudden influx of *Anopheles* mosquitoes, *A. crucians* and what was identified locally as *A. quadrimaculatus* was noted at Gulfport, Miss., during the first week in December, 1921. It is more than probable that the so-called *quadrimaculatus* were *A. atropos*.

2. A second influx of great intensity was noted during the

early part of February, 1922. Great numbers of *Anopheles crucians* and *A. atropos* were found on both Cat Island and Ship Island, south of Gulfport in the Mississippi Sound.

3. Extensive larval and pupal collections made on Ship Island, at a time when adult *A. atropos* were present in large numbers, showed that no emergence of this species was taking place at this time, all adults from the larvae and pupae collected proving to be *A. crucians.*

4. The females of *A. atropos* bite in broad daylight, even at a distance from shore. The males swarm at dusk in the shelter of low vegetation.

5. Contrary to Beyer's statement (2), the adults of *A. atropos* are not usually fragile, as many females survived a long journey, and deposited fertile eggs thereafter.

6. Collections of imagoes on the mainland showed numbers of *A. atropos* present all during the month of April.

On several trips made later in the season, in June of 1922 and 1923, not a single imago of *A. atropos* could be found anywhere on the islands where they had been so abundant earlier in the year. Apparently the insects are seasonally very plentiful, or have certain restricted breeding-areas or conditions. However, Beyer (2) reports large numbers of *A. atropos* occurring in early June in southern Louisiana.

Beyer has studied *A. atropos* in Louisiana, and has described a very dark form of the insect found along the southern coast. There seems to be considerable variation in the coloration of this species, possibly depending on the season, as the specimens collected by the writer in Mississippi, and a single female, presumably of *A. atropos,* collected at Weeks' Island, La., on salt-marsh, were rather light, more or less rufous in color, with the hair at the bases of the abdominal segments more or less golden. The wing-spots of these specimens were noticeable, although possibly not so well marked as in *A. quadrimaculatus.* The palpi had two white bands, as well as white tips. Beyer's specimens were very dark, having almost no spotting of the wings, and only one indistinct white band on the palpi. That they are the same species, *atropos,* is proved, however, by

examination of the genitalia of the males, which are identical, Beyer having kindly forwarded several of his specimens for comparison. Differences in depth of coloration are not uncommon in other species of *Anopheles,* a striking example being the extremely dark form of *Anopheles punctipennis* called *perplexens* (3) in which the costal light spot is almost obsolete.

The writer is not in accord with Beyer in his deductions from laboratory experience with the larvae of *A. atropos.* Beyer regards *A. atropos* as a mud-feeder in the larval stage, because the larvae thrived best in shallow containers partially filled with mud, with a layer of killed algae for food. Laboratory experience with other species of Anophelines shows that they, too, will thrive under such conditions, provided that the food material does not become too putrid. The short life-period, 14 days from egg to imago, is due to the abundance of food provided, as *A. quadrimaculatus* has been brought through from egg to imago in 10 days under similar circumstances.

Observations on A. WALKERI

In 1923 observations were made in and about Crowley, La., in the prairie rice-growing regions of the State. On May 31 larval collections of Anopheles were made in waters covered with water-hyacinth (*Piaropus crassipes*), near the Mermentau River, in Acadia Parish. Five adult *A. walkeri* were obtained from a collection of 30 pupae, the remainder being *A. quadrimaculatus.* Root's work (4) had not appeared at the time, and it was thought that the species found in fresh water was the same as that found in Mississippi near salt water. The *walkeri* imagoes could be distinguished easily from the *quadrimaculatus* imagoes by their uniformly darker color, the steely blue glint of the wing-membrane and the white markings at the articulations and tip of the palpi. On June 4th another collection was made over the same waters, and three more *A. walkeri* imagoes were obtained from material taken at this time. During the remainder of the year collections made in two other localities widely separated, in the same territory, gave specimens of *walkeri.* All of these occurrences were in fresh water, at least 30 miles from

the seacoast, and in one instance from a rice-field irrigated from a deep well. In 1924, a very dry year in this locality, five occurrences were noted, all females, in April, May and June. Imagoes of this species were collected along with those of *A. quadrimaculatus* and *A. crucians,* in barns and under houses and in similar shelters. Our records show captures of specimens as follows: June 20 and 21, 1923, 1 female each date; June 25, 2 females; July 9, 3 females, 3 males. In 1924 the record is April 29, 1 female: May 14 and 15, 1 female each date; June 10, 2 females; June 26, 1 female.

Matheson and Shannon (1) have described the larva and male, both hitherto unknown, from material collected in New York State. Through the kindness of Prof. Matheson, two female *A. walkeri* were exchanged for some of the Louisiana material. The main differences between the two lay in size, the northern specimens being considerably larger than any of the Louisiana specimens, and in color, the northern specimens being somewhat lighter, more nearly like *A. quadrimaculatus* in coloration.

The writer has been unable to draw any valid distinction between the larva of *A. walkeri* and of *A. quadrimaculatus.* Matheson and Shannon (1) have made a separation on the basis of the number of teeth and of the lateral branched hairs on the mandibles, but these seem to be inconstant characters and rather difficult to see.

Russell's work (5) had not appeared at the time the *walkeri* larvae were available, so that it has been impossible to compare them with other larvae, having Russell's distinctions in mind.

The pupae of *A. walkeri* have a very distinct habitus, enabling one to pick them out from other pupae of Anopheles without difficulty. They somewhat resemble *A. crucians* pupae, being somewhat compressed laterally, and usually of a dark mahogany brown. The breathing-trumpets are prominent, and more flared at the tips than in any of our three other common species. The pupae have a peculiar habit, which has not been observed in the pupae of any other Anopheline known to the writer, and

which may serve as a diagnostic point to differentiate *A. walkeri* pupae from other species. The pupae seek the sides of the container in which they are confined, and push themselves up into the meniscus of the water surface, sometimes even so far as to be out of the water entirely. This occurred whether the pupae were in clear water or in water rendered turbid with food material.

Root (4) has differentiated *A. walkeri* from *atropos* on genitalic characters, slight but apparently very constant. The differences lie in the length of the leaflets at the tip of the mesosome, and also in the degree of clubbing of the tip of the spines on the ventral lobe of the claspette. Later work by the same author (6) has shown that the number of leaflets on the mesosome of *A. walkeri* is subject to variation, as some of his material has four pairs instead of three. Matheson and Shannon (1) describe their *walkeri* as having four pairs of leaflets.

The writer has carefully examined his material, consisting of 7 males of *A. walkeri* and 2 males of *A. atropos,* for genitalic characters, and is able to confirm Root's work as a basis for the separation of the species. Two males show definitely the *atropos* type, the spines of the claspette being long, slender, and distinctly clubbed; there are three pairs of leaflets on the mesosome, the last small. These males were taken at Gulfport, Miss. The length of the longest pair of leaflets seems to be subject to some variation in this species, as in these specimens, each leaflet of this pair was almost as long as the clubbed spines of the ventral lobe of the claspette.

The genitalia of 7 males bred from the larvae of pupae taken in fresh water show a peculiar variability in the number of leaflets at the tip of the mesosome. Some showed the normal number, four, and had the clubbed spines less strongly clubbed than in the salt-water *atropos*. One specimen had only two leaflets on each side, one about half as long as the other. In this connection it is pertinent to note that unless these structures are viewed with a binocular microscope with the specimen immersed in a clearing oil, it is very difficult to determine the number and relative size of the delicate leaflets. Additional information is

often secured if the specimen be cleared in creosote, then stained in a solution of safranin in creosote, and examined in glycerine under a binocular compound microscope. The stain renders the delicate structures more easily visible, and the color is not removed so quickly if the specimen be immersed in glycerine. The final mount for preservation is in balsam under a cover-glass.

An attempt was made to infect *A. walkeri* with malaria by allowing a female to feed on a case of estivo-autumnal malaria with 28 crescents per thousand leucocytes. At the same time a number of *A. quadrimaculatus,* a known carrier, were allowed to feed. The *A. walkeri* was dissected 20 days after feeding, and no evidences of infection were found either in the gut or in the salivary glands. This, however, is not evidence that this species is unable to transmit malaria, for none of 21 *A. quadrimaculatus* dissected, which had fed at the same time, showed any evidence of infection.

SUMMARY

From the evidence presented above it seems reasonable to conclude that (1) there is a salt-water breeding *Anopheles, A. atropos,* occurring along the Gulf Coast, often in immense numbers, but apparently very local and seasonal in occurrence. The breeding-places of this species are at present unknown. (2) A very similar and apparently closely related species, *A. walkeri,* occurs in several localities in southwestern Louisiana, not far from the coast, breeding exclusively in fresh water. The range of these two species may be found to overlap in the southern part of this territory. The record quoted by Dyar in Proc. U. S. Nat. Mus. Vol. 62, art. 1, p. 106, must be changed to *A. atropos.* (3) No information is at hand as to the possibility of transmitting malaria by the salt-water form, *A. atropos.* (4) A single infection experiment with one female *A. walkeri* yielded negative results in an attempt to infect it with malaria.

NOTE: Since writing this paper, Dr. T. H. D. Griffitts of the United States Public Health Service has discovered the breeding-place of *Anopheles atropos.* In a personal communica-

tion he states that larvae were taken at Coden, Alabama, on October 18th, in very salty water. Two females and a male bred from these larvae were sent by Dr. Griffitts for determination. They prove to be typical *atropos,* very dark, with inconspicuous wing-spots, and the male genitalia are typical in every respect. The leaflets on the mesosome number three pairs, the last small.

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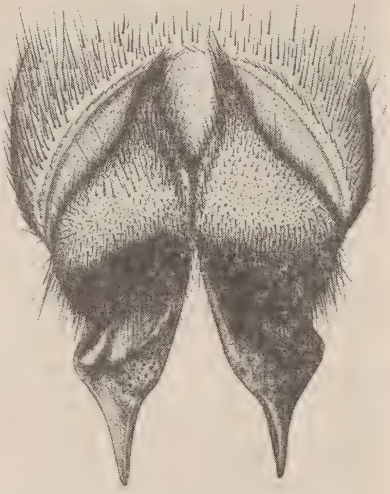
A NEW SPECIES OF SARCOPHAGA (DIPTERA) FROM OHIO[1]

By DAVID G. HALL

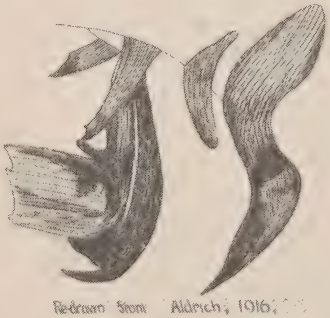
Sarcophaga ohioensis, new species.

Male. Front .212 average of two (.21 and .214); parafrontals and parafacials greyish pollinose; the latter with a regular row of hairs becoming longer and more bristly below; frontal stripe dark; frontal bristles about ten; rows abruptly divergent below, reaching to the middle of the second antennae joint. Ocellulars developed, outer verticals absent. Antennae black, third joint dark brown, two and a half times the second, reaching four-fifths of the way to the vibrissae which are at the

[1] Research Paper No. 43, Journal Series, University of Arkansas.



SARCOPHAGA OHIOENSIS. N.SP.



Redrawn from Aldrich, 1916, Sarcophaga and Allies, fig. 122.

SARCOPHAGA FLAVIPALPUS-ALD.

oral margin and quite far apart. Arista, long, plumose over half way, palpi yellow, rather long and stout, the tips distinctly darkened, proboscis dark brown, bucca one-third the eye-height, with black hair in front of the suture, light hair behind, back of head with three distinct rows of black hair.

Thorax with rather glacious pollen, three to five black stripes, post duocentrals four in number, anterior acrosticals distinctly developed, prescutellars one, sternopleurals three, scutellum with two marginals, one large preapical and one large apical.

Abdomen gray pollinose, tessellated, first and second segment with only lateral bristles, third with both median and lateral pairs, fourth with a marginal row of about sixteen; fifth sternite unique, large and distinct, near the base with two prominent brown lobes which possess a brush of black bristles on the inner hind and hind side; beyond these lobes, the organ is cut out in a semicircle and the brush continues along the inner edge of the lobes but are not visible in profile; there is a rounded lobe beyond the excision.

Hypopygium red, rather large, first segment pollinose above, tessellated, with a row of strong bristles behind; second segment globose, shining, with erect and abundant black hair; forceps reddish brown, slender and tapering to the tips which are black. Viewed from behind, they stand apart basally, this space becoming suddenly widened near middle; on outer side near the base there is a deep oblique indentation. In profile, the free part bends strongly backward for about half its length, becoming gradually slender and curving forward to a sharp tip. Accessory plate slender, finger-like, yellow, with a few black and tawny hairs; posterior clasper short, dark brown, curved a bit forward; anterior clasper dark brown, short, rather stout, and curved forward. Penis rather large, dark brown to black, basal joint short, the distal segment with a striking keel-like hind margin, extending in a curve over the tip into a pronounced free hook which turns dorsally forwards; the basal part of the segment is triangular in cross-section, being flat in front, from the middle part two broad diagonal irregular thin plates extend

forward which in profile hide a pair of black hooks which also extend forward.

Legs black, middle femur with a short black brush. Hind tibia with an erect villosity on the inner side.

Wings hyaline, no costal spine, third costal segment longer than the fifth, first vein bare, third vein with but several hairs.

Female; seemingly unseparatable from flavipalpus.

Two males from Sugar Grove, Ohio, July 8, 1926, collected upon the filth caused by teasing two young turkey vultures. From this it would seem that the species was a scavenger by habit.

Type. To be deposited in the United States National Museum at Washington.

Paratype. In the collection of the author.

This species may easily be confused with *Sarcophaga cingularis* Aldrich, and allies, p. 184, fig. 84; *S. deceptiva,* Ald. ibid., p. 186, fig. 85; and *S. flavipalpus,* Ald. ibid., p. 256, fig. 122. *S. cingularis* and *S. ohioensis* possessing black legs, separate themselves immediately from *S. cingularis* and *S. deceptiva,* which have yellow legs. *S. flavipalpus* lacks the villosity of the hind tibia, the heavy and more deeply indented forceps of *S. ohioensis.* In addition to these differences, *S. flavipalpus* possesses claspers that are hooked at the tips, and much longer than those of *S. ohioensis* in which they are very short and simple of formation.

The drawings of *S. ohioensis* (pl. 4) are simple and need no explanation. The view from the left side is drawn and compared with the same view of *S. flavipalpus* Ald. The same has been done with a rear view of the forceps, which are distinctive.

The terminology used in this paper is the same as that of Aldrich and Parker in their papers on Sarcophagidae.

MOSQUITO NOTES

(*Diptera, Culicidae*)

By HARRISON G. DYAR

Aëdes melanimon Dyar.

Professor Stanley B. Freeborn (Univ. of Calif., Tech. Bull. Agr. Exp. Sta., iii, 368, 1926) reduces *melanimon* to a synonym of *dorsalis* Meig. I do not think this is justified. The figure of the male hypopygium which he gives of *melanimon* (fig. 12) is perfectly typical, showing the two slender spines of the basal lobe of side-piece, not strongly differentiated from the other spines. In *dorsalis* these spines are shortened, more similar, and much stouter than the other spines, as well shown by Edwards (Mosquitoes of the Palearctic Region, Bull. Ent. Res., xii, 301, 1921, fig. 8, b). I thought that perhaps larval differences might exist; but after many patient sendings Major Badger at last furnished me with good material, no larval differences are observable.

Melanimon runs uniformly at Bakersfield, and there are no *dorsalis* there. However from Benicia Barraks, Lieut. F. H. Chase and other officers have sent in a form somewhat intermediate between the two, though leaning toward *melanimon.* Unfortunately there are no males. We suggest that Professor Freeborn make some collections at Benicia, and see what we shall see. The place is not very far from his location.

Sabethoides prolepidis Dyar & Knab.

Lutz proposed *Prosopolepis* for a species with small deciduous white scales on the clypeus. In other respects and with the broad wing-scales it does not differ from *Dendromyia* (Ins. Ins. Mens., xiii, 226, 1925). These scales are apparently of no fundamental importance. They are similar to the white scales that occur occasionally on the metanotum, on which Lutz founded his genus *Menolepis.* This is otherwise a *Wyeomyia,* in other species of which such scales are sometimes found.

In 1908 Dyar & Knab described a species from Panama with dense black scales on the clypeus which are not deciduous. To

this *Prosopolepis jocosa* from Caldera Island, of which only the single original specimen exists, was added *Prosopolepis prolepidis* in 1919, a form which has proven to be seasonally not uncommon in various parts of the Canal Zone. No species with this character of black scales on the clypeus has been recorded from elsewhere in tropical America. The larval habitat has been assiduously searched for in vain for a number of years. The "seed palm" was once suggested (Ins. Ins. Mens., xiii, 126, 1925); but it remained for Dr. D. P. Curry to find the actual breeding place. He found some strange Sabethid larvae in fluid between the leaves of a plant resembling "Jack-in-the-pulpit," probably a species of *Xanthosoma,* family Araceae, from which adults of *Prosopolepis prolepidis* were isolated.

Mr. Paul C. Standley, after seeing a sketch of the plant, thinks that it might be *Xanthosoma pilosum* Koch; but as that is very rare in the Zone, it is more probably *Montrichardia arborescens* L., a very large plant abundant in swamps near the Atlantic coast.

The larvae are most anomalous in structure. They have the horned and toothed maxillae of *Sabethes* and *Sabethoides,* in habit not exclusively carnivorous as *Sabethes,* but using the maxillae to masticate larger nutritive substances, as in *Sabethoides.*

Larva. Head rounded triangular, rounded narrowly in front, broadest on the posterior margin. Eyes small. Mouth brushes well developed. Maxilla conical, with a terminal horn, a seta at its base, and three or four small teeth on the inner margin. Antennae slender, uniform, not exceeding the mouth brushes. Frontal spines small, stout, inserted. Lower head hairs remote, single; upper hairs four, nearly in a transverse row, all single, slight. Abdominal hairs moderate, the long lateral ones in twos and threes. Comb of the eighth segment of six large sharp teeth above, with about 12 small ones below, in a slightly irregular row. Air tube regularly tapered, about five times as long as wide; on the dorsal surface six very stout spine-like setae in two rows of three each; below a four-haired tuft on each side at the basal fourth and a single hair at the

apical fourth; on the ventral line an irregular series of about six triangular scales; outwardly the tube is distinctly spicular. Anal segment with a lunate weak plate reaching the lateral tuft; dorsal hairs a tuft of six and four on each side; lateral tuft in three, all long; subventral tuft in four, weak, but moderately long. Anal gills four, long, slender, equal.

Dr. Curry says: "Small *Culex* and *Aëdes* fed to them disappear, and they are seen feeding on fragments of the dead larvae in the bottom of the tube. They also feed eagerly on minute particles of red beef steak. One larva choked to death on a piece of steak. They spend much time in a vertical position, head downward, tossing and mouthing over the little balls of excrement and other débris at the bottom of the tube. Also they lie flat on the back as if 'chewing the cud', the horn-tipped maxillae extending at right angles to the head and pointing upward."

As seen by larval characters, *prolepidis* clearly belongs in the genus *Sabethoides*. It is difficult, however, to accommodate the adults in this genus with the criteria in use. Prealar setae are distinctly present, and there is nothing obvious to take the species out of *Dendromyia*, except the peculiar feature of the black-scaled clypeus.

Dyar and Shannon have some remarks on the unreliability of the pleural setae for classification in certain cases (Journ. Wash. Acad. Sci., xiv, 473, 1924), to which may be added the case of *leucomelas* Lutz (*leucocelaenus* D. & S.), which is a *Haemagogus* by male structure and coloration, but has not lost enough setae to take it out of *Aëdes*. This case is similar; *prolepidis* is a *Sabethoides* on larval characters, but has not lost enough setae to take it out of *Dendromyia* on the present classification. *Prosopolepis* is wrongly placed by Howard, Dyar & Knab (Mosq. No. & Cent. Am. & W. I., iii, 22, 1915), owing to paucity of material at the time. According to the characters there used, the eyes are separated by at least a narrow area and the prothoracic lobes are collar-like. However, the lobes are pretty well separated dorsally, so that we may come out to *Wyeomyia* as there defined, although the lobes are distinctly

less separated than in *Dendromyia codiocampa* for example. In fact this table almost works the way we want it to, and may be made to do so by a little stretching of the comparative character of the separation of the lobes.

Looking over my old slides I find that a specimen of this larva was sent in by Major L. H. Dunn nine years ago from elephants ears plants at Empire. No adults were received, however.

GENERIC NOTES

(*Lepidoptera, Phalaenidae*)

By WM. BARNES and F. H. BENJAMIN

Euamiana, new genus.

Paramiana Auct. (nec B. & Benj.) 1926, Draudt, in Seitz, Macrolep., VII, 276-277 (partim.).

Type *Perigea contrasta* B. & McD. This genus is intermediate between *Paramiana* B. & Benj. and *Nocloa* Sm. It possesses the essential characters of *Paramiana* (type *lætabilis* Sm.) but the frons bears a central truncate tubercle instead of being merely strongly rounded out. This corresponds to the cup-shaped central process of *Nocloa* (type *plagiata* Sm.). The rounded frons of the new genus is truncated but this portion is not margined by any raised rim.

Besides the genotype, *contrasta,* we would place in *Euamiana* the species *endopolia* Dyar, *dissimilis* B. & McD., and probably *Luperina cuppes* Dyar. We have a male of *endopolia,* donated by Professor Draudt from Mexico. Dr. Dyar informs us that the type is a female, and shows much less of white shading. *Cuppes* is from Mexico; we have a specimen from Professor Draudt which Dr. Dyar has compared with the type.

Nocloa torniplaga B. & McD. can tentatively be placed in *Paramiana.*

The Barnes collection now possesses twenty-seven *dissimilis,* eleven *contrasta,* and four *torniplaga,* enough of a series to show that the relationship is closer to *Paramiana* than to *Nocloa.*

According to a specimen determined by Professor Draudt as *Thyatirodes godalma* Schs. (from Mexico), which Dr. Dyar has compared with the type, the genus *Thyatirodes* is closely allied to *Paramiana* and *Euamiana,* the frons bearing a strongly rounded out prominence, rather truncated, not bounded by an encircling ring, but with a central process in the form of a tubercle on the ventral half of the frons elongated dorsally into a vertical ridge reaching nearly to the vertex, the clypeal plate present. It is apparent that Hampson has overlooked a number of details in regard to the frontal armature of this genus, which, so far as we know, is monotypical.

Pseudoxylomoea, new genus.

Type *Apamea lætrina* Druce. This genus possesses the essential characters of *Xylomoia* Staud., but the fore wing broader and with a strong cone-shaped projection to the frons near the vertex, a character evidently overlooked by Hampson when he placed the species in *"Xylomœa"*.

Hampson deliberately emended *Xylomoia* to *Xylomœa,* which we doubt he had the right to do regardless of derivation of the name. We have, however, adopted the *œa* termination for the new generic name.

NEW LEPIDOPTERA FROM MEXICO—II

By HARRISON G. DYAR

Family NOTODONTIDAE

Dasylophia bigeminata, new species.

Female. Fore wing broad, gray basally and outwardly along submedian fold, pinkish over disk and apically; a large black blotch on costa, occupying nearly the basal third; a similar blotch at lower angle of cell, filling bases of veins 2-4; a round submarginal spot in interspace 2-3; an oblique blackish shade beyond cell to apex, streaked on the veins; a round discal spot in lower angle of cell; slight traces of two pale wavy transverse

lines, shown on costa only. Hind wing dark fuscous. Expanse, 50 mm.

Type, female, No. 40276, U. S. Nat. Mus.; Colima, Mexico, August, 1926 (R. Müller).

Family NOCTUIDAE

Hydroeciodes pericopis, new species.

Ruddy gray-brown, not strongly suffused with reddish; inner and outer lines smooth, dark, evenly curved, claviform and orbicular similar broad, reddish filled; reniform large, yellow filled, with three white spots below and a dark above. Hind wing sordid stramineous, broadly fuscous outwardly. Expanse, 29 mm. Antennae strongly bipectinate.

Type, male No. 40277, U. S. Nat. Mus.; Coatepec, Mexico, October, 1926 (R. Müller).

Hydroeciodes plugmona, new species.

Fore wing dark brown, suffused with reddish; inner and outer lines dark, both wavy-crenulate, the outer excurved over cell; claviform, orbicular and reniform similar, large, red filled and brown edged, the reniform with also a brown central line. Hind wing fuscous, clearer on disk. Expanse, 32 mm. Antennae bipectinate except at tips.

Type, male, No. 40278, U. S. Nat. Mus.; Coatepec, Mexico, October, 1926 (R. Müller).

Antaplaga pseudovarra, new species.

Fore wing gray with only slight brassy yellow tinge. Hind wing dark gray, paler internally. Expanse, 26 mm.

Type, female, No. 40279, U. S. Nat. Mus.; Coatepec, Michoacan, Mexico, November, 1926 (R. Müller).

Antaplaga muricolor, new species.

Fore wing dark gray, brassy yellowish tinged, especially along costa. Hind wing blackish, the fringe pale. Expanse, 26 mm.

Type, female, No. 40280, U. S. Nat. Mus.; Coatepec, Michoacan, Mexico, October, 1926 (R. Müller).

Antaplaga simplicia, new species.

Fore wing shining white, slightly grayish tinged; gray below. Hind wing grayish white, grayer costally. Expanse, 31 mm.

Type, female, No. 40281, U. S. Nat. Mus.; Coatepec, Michoacan, Mexico, November, 1926 (R. Müller).

These are possibly varietal forms rather than species, but if so it would be difficult to place them. *A. pseudovarra* is near *varrara* Dyar but the fore wing is too gray; *muricolor* is still darker, but of the same type; *simplicia* looks distinct.

Mictochroa indigna, new species.

Fore wing ample, apex blunt; dull greenish gray; inner line blackish, coarsely crenulate; orbicular a ring with central dot; reniform pale filled, with a blackish dividing line but no border; a black shaded spot below middle of cell; outer line coarsely crenulate, blackish, slender, excurved over cell, edged with pale outwardly; subterminal line shaded, twice out-dentate; a row of terminal black dots; fringe dark. Hind wing dark fuscous, with traces of discal dot and outer crenulate line; terminal black dots on fore wing; fringe paler. Expanse, 28 mm.

Type, female, No. 40124, U. S. Nat. Mus.; Chiapas, Tabasco, Mexico, June, 1926 (R. Müller).

Parachabora umbrescens, new species.

Fore wing ample, pointed at apex; dark purplish brown, more blackish at base and over discal area; markings almost illegible, strigose, the subterminal line most distinct, crenulate, followed by dull whitish patches. Hind wing whitish, the veins and broad outer margin dark brown, fringe pale. Expanse, 31 mm.

Similar to *P. pseudanaetia* Dyar, wing more ample, the strigose lines nearly lost, the hind wing with broad dark border.

Type, male No. 40125, U. S. Nat. Mus.; Chiapas, Tabasco, Mexico, June, 1926 (R. Müller).

Mastixis rilmela, new species.

Fore wing with the outer margin outbent in the middle. Purplish brown, not very dark, but a blackish shade occupies the lower half of the median space. Lines blackish, slender,

inner outcurved nearly at right angles on median vein, inwardly so on vein 1; outer line excurved over median venules, incurved below; subterminal line forming a narrow white V at apex, outbent on discal venules, preceded by a dark shade and followed by a small distinct blackish patch at apex. Orbicular a white dot in a black ring; reniform a narrow bent white line, rather faintly black edged. Hind wing gray-brown, with faint discal mark and mesial dark line; outer line whitish, denticulate. Expanse, 27 mm.

Type, male, No. 40126, U. S. Nat. Mus.; Xochimilco, D. F., Mexico, May, 1926 (R. Müller).

Family GEOMETRIDAE

Tephrina intimidaria, new species.

Wings whitish gray, with many blackish strigae, which agglutinate to form a blackish patch above tornus of fore wing; inner line straight, blackish somewhat powdery interrupted; a fainter line beyond it and parallel; outer line distinct, similar; strigae dense in subterminal space; discal mark black, a streak. Hind wing similar, showing faint inner and distinct outer line and discal streak; subterminal space with heavy strigae as on fore wing. Expanse, 19 mm.

Type, male, No. 40127, U. S. Nat. Mus.; Colima, Mexico, September, 1925 (R. Müller).

Considerably resembles *Physostegania odrussa* Druce, without the black costal intensifications.

Melanolophia phyararia, new species.

Fore wing slightly olivaceous gray, with russet tints before the inner and beyond the outer line; surface peppered with black atoms; inner line black, broken into segments; a faint narrow dentate mesial line; outer line strongly dentate, black; a series of subterminal rounded black spots; terminal black spots between the veins; fringe checkered. Hind wing soiled whitish, dotted irrorate; a discal dot and outer maculate band; outer margin with black dashes. Expanse, 31 mm. In the female the markings are less distinct.

Type, male, paratypes, 9 males, 1 female, No. 40128, U. S. Nat. Mus.; Popocatepetl Park, Mexico, 8000 feet, June, 1906 (W. Schaus).

Tephroclystia sellimima, new species.

Fore wing ample, acute. Rather dark gray with several diffuse dark blotches along the costa; discal mark large, blackish; no distinct lines, but outwardly narrow white streaks on the veins followed by black dots; a broad vinous brown submarginal band starts on costa, curves outward, narrows and is lost; a terminal dark line cut by white points on the veins. Hind wing pale gray; an outward double faint whitish line, followed by black points; a black terminal line, cut at the veins as on fore wing. Expanse, 15 mm.

Type, male, No. 40129, U. S. Nat. Mus.; Mexico City, D. F., Mexico (R. Müller).

Plemyria delicata, new species.

Fore wing light gray, irrorate with fine black scales; inner and outer lines subparallel, narrow, faint and broken; black dottings along the veins, and several other very faintly indicated cross lines; a small round black discal dot; a faint pale submarginal line surrounded by slightly darker shading. Hind wing pale whitish gray. Expanse, 29 mm.

Type, male, No. 40130, U. S. Nat. Mus.; Mexico City, D. F., Mexico (R. Müller).

Psaliodes onopria, new species.

Fore wing soiled whitish, crossed by a broad brown central band with straight edges; termen broadly brown, the limiting line curving sharply to apex; a narrow line between these, and two basally of the band, blotched along costa. Hind wing whitish, with discal dot and outer line, both faint; margin a little brownish shaded. Expanse, 16 mm.

Type, female, No. 40131, U. S. Nat. Mus.; Chiapas, Tabasco, Mexico, July, 1925 (R. Müller); paratypes, 3 females, Chejel, Guatemala, August (Schaus & Barnes).

TWO NEW AUSTRALIAN THYSANOPTERA

By A. A. GIRAULT

The types of the following two species are in the Queensland Museum.

Neophysopus burnsi, new species.

Brown black, wings brown, antennals 3-4 pale; upper vein with 7 bristles plus 3 widely spaced in distal ½; lower with 3 and 3 in distal ½ less widely spaced than in upper. Posterior angle pronotum with 1 weak, short pale "bristle". One style joint.

Differs from *fragariae* otherwise in 7-jointed antennae. *Fragariae* is orange, wings dusky, legs pale, antennal 1 pale, 2 orange, rest dark; lower vein bears only several setae distad, these widely spaced.

Many females, flowers *Agerotum corynoides,* Morningside, Q., Nov. 2, 1925.

Frankliniella aeschyli, new species.

From *trybomi* Karny: Pterothorax unicolorous; antennals 1-2 pale, 3-5 dark, pale at base, 6-8 black. (Veins regularly setose.) Second bristle hind margin pronotum longest, 3 distinctly shorter than 1.

Seven females flowers *Solanum wendlandti,* Rockhampton, Q., March 2, 1926.

Heliothrips haemorrhoidalis (Bouché).

One female by sweeping, jungle, Maleny, Q., June 20, 1924. The species is not common, even on cultivated plants.

A NEW GENUS OR SUBGENUS OF THYSANOPTERA

By A. A. GIRAULT

Proposed for *Neophysopus burnsi* described above.

Paraphysopus, new genus.

From *Neophysopus* in having antennae but 7-jointed, style 1-jointed.

NOTES ON AUSTRALIAN THYSANOPTERA

By A. A. GIRAULT

The following records ought to be published.

Thrips of White Clover. The following species were taken from this flower growing in an open lot, Norman Park, Queensland, Nov. 28, 1926:

Pseudanaphothrips achaetus (Bagnall).
Thrips lacteicorpus Girault.
Thrips imaginis Bagnall.
Physothrips cinctipennis Bagnall.

Thrips of Strawberry. In the Department Agriculture collection at Brisbane I have found slides of the following species taken from this plant:

Thrips tabaci Lind., Wellington Point, Q., Tryon.
Neophysopus fragariae Girault, Cleveland, Q., J. H. Simmonds.
Thrips imaginis Bagnall, Cleveland, Q., J. H. Simmonds.
Pseudanaphothrips achaetus (Bagnall), Manly, Q., Tryon.

Neophysopus io, new species.

Differs from *fragariae* in having the tarsi short, much less than half the tibiae, setae of veins of wing 1 a half smaller, upper, 10 toward middle from base plus 1 half way to apex from middle; lower, 9 regular to middle plus 4 on distal ½. Antennae pallid, darker at 6-8.

Several females, miscellaneous wild flowers, Gympie, Q., July, 1924.

RECORDING AUSTRALIAN THYSANOPTERA

By A. A. GIRAULT

Plesiothrips perplexus (Beach).

On maize, near Brisbane, Queensland, Dec., 1926, females only. Introduced. The maxillary palpi are 3-jointed. The genus seems misplaced at present and is close to *Fulmekiola* Karny and to *Limothrips.*

Thrips shakespearei, new species.

Wing 1 sans cross-veins, infuscated uniformly. Orange, abdomen, legs golden, former brown-black above. Antennae black, 1-3 white, 3, 4, 6 long. Upper vein distal half, 1+1+1 bristles, 4+3 proximad, bristles moderate. Pronotum stiffly setose. Anal setae elongate, black. Antennal 7 longer than wide. Jungle, Gympie, Queensland.

Desmothrips bagnalli Karny.

Flowers *Cocos plumosa,* Jany. 10, 1926, Morningside, Q.

NOTES ON BITING FLIES FROM VENEZUELA

(*Diptera, Culicidae, Psychodidae*)

By HARRISON G. DYAR and M. NUÑEZ TOVAR

(Addendum to page 155)

Aëdes (Howardina) argyrites, new species.

Female. Proboscis black (broken). Occiput with a straight silvery white line in the middle, black on each side, the sides mottled with black and white. Mesonotum blackish brown scaled, a broad silver stripe on each side from the root of the wing to anterior angle; medianly are two faint narrow dotted golden lines running three fourths, supplemented behind by a single silvery line; a second pair of golden lines, posteriorly only; pleura and coxae with patches of silver scales. Abdomen black, with basal segmental dorsal, yellowish, and lateral silvery spots; venter straw yellow, the posterior segments apically broadly black banded and projecting ventrally. Legs black; mid tarsi with a white ring at base of first joint, hind tarsi with broad white rings at bases of first and second joints (third to fifth missing in the specimen). Wing scales narrow, black.

One female, Venezuela.

Note on Aedes nearcticus Dyar

Mr. C. R. Twinn (Can. Ent., lxi, 47, 1927) makes *Aëdes nearcticus* a synonym of *Aëdes alpinus* L. on the strength of his

examination of type material of the former name in the Canadian National collection. The male hypopygium of the two species is similar, and in case it is proved that the type material is mixed, I here restrict the name *nearcticus* to the species in which the mesosome is weak and not chitinized and claw-like, specifically to slides Nos. 870, 871, 873, 874 and 875 in the U. S. National Museum collection, being part of the original cotype series.

HARRISON G. DYAR.

INDICES

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